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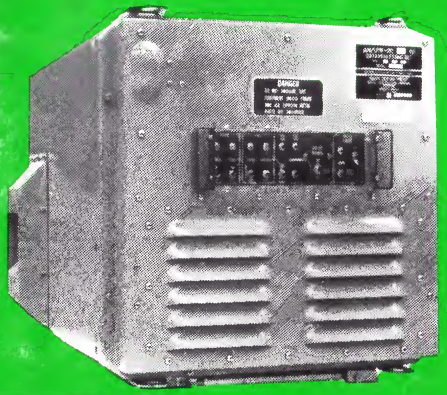
Technical Summary



MAY 1991

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OCTAL FORMAT o	f	a	m	HEXIDECIMAL FORMAT OP	a	m	CODING FORMAT	INSTRUCTION	OPERATION	C	OV	CC
00	0	–	–	00	–	–	–	Diagnostic return	If diagnostic jump set $R_{17} \rightarrow \mu P$	– NC –		
00	3	a	m	03	a	m	BL a,y,m	Byte load	(Y) byte $\rightarrow R_{a7-0}$; $0 \rightarrow R_{a15-8}$	0	0	X
01	0	a	m	04	a	m	LR a,m	Load (Register)	$(Rm) \rightarrow R_a$	0	0	X
01	1	a	m	05	a	m	LI a,m	Load (Indirect)	$(Y^*) \rightarrow R_a$	0	0	X
01	2	a	m	06	a	m	LK a,y,m	Load (Constant)	$Y \rightarrow R_a$	0	0	X
01	3	a	m	07	a	m	L a,y,m	Load	$(Y) \rightarrow R_a$	0	0	X
02	0	a	00	08	a	0	PR a	Make positive	If $(R_a) < 0$, $(R_a)' \rightarrow R_a$	X	X	X
02	0	a	01	08	a	1	NR a	Make negative	If $(R_a) > 0$, $(R_a)' \rightarrow R_a$	X	0	X
02	0	a	02	08	a	2	RR a	Round	$(R_a) + (R_{a+1})_{15} \rightarrow R_a$ ①	X	X	X
02	0	a	04	08	a	4	TCR a	Two's Complement	$(R_a)' \rightarrow R_a$	X	X	X
02	0	a	05	08	a	5	TCDR a	Two's Complement Double	$(R_a, R_{a+1})' \rightarrow R_a, R_{a+1}$ ③	X	X	X
02	0	a	06	08	a	6	DCR a	One's Complement	(R_a) bit-by-bit complement $\rightarrow R_a$	0	0	X
02	0	a	10	08	a	8	IRDR a	Increase R_a by 1	$(R_a) + 1 \rightarrow R_a$	X	X	X
02	0	a	11	08	a	9	ORDR a	Decrease R_a by 1	$(R_a) - 1 \rightarrow R_a$	X	X	X
02	0	a	12	08	a	A	IRTR a	Increase R_a by 2	$(R_a) + 2 \rightarrow R_a$	X	X	X
02	0	a	13	08	a	B	DRTR a	Decrease R_a by 2	$(R_a) - 2 \rightarrow R_a$	X	X	X
02	1	a	m	09	a	m	LDI a,m	Load Double (Indirect)	$(Y^*, Y^*+1) \rightarrow R_a, R_{a+1}$ ③	0	0	X
02	3	a	m	08	a	m	LD a,y,m	Load Double	$(Y, Y+1) \rightarrow R_a, R_{a+1}$ ③	0	0	X
03	0	a	00	0C	a	0	ER a	Executive Return	Generate interrupt; $(P)+1 \rightarrow R_a$ ⑤	0	0	X
03	0	a	01	0C	a	1	SSDR a	Store SR1	$(SR1) \rightarrow R_a$	0	0	X
03	0	a	02	0C	a	2	SSTR a	Store SR2	$(SR2) \rightarrow R_a$	0	0	X
03	0	a	03	0C	a	3	SCR a	Store Clock	(RTC register)$_{15-0} \rightarrow R_a$	0	0	X
03	0	a	04	0C	a	4	LPR a	Load P	$(R_a) \rightarrow P$	– NC –		
03	0	a	05	0C	a	5	LSOR a	Load SR1	$(R_a) \rightarrow SR1$	– NA –		
03	0	a	06	0C	a	6	LSTR a	Load SR2	$(R_a) \rightarrow SR2$	– NC –		
03	0	a	07	0C	a	7	LCR a	Load RTC lower	$(R_a) \rightarrow$ RTC register$_{15-0}$;	– NC –		
03	0	00	10	0C	0	8	ECR	Enable Clock	Enable RTC reg. (countup and interrupt)	– NC –		
03	0	00	11	0C	0	9	DCR	Disable Clock	Disable RTC reg. (countup and interrupt)	– NC –		
03	0	a	12	0C	a	A	LEM a	Load and Enable Mon. clock	$(R_a) \rightarrow$ Mon. clock reg.; enable countdown and interrupt	– NC –		
03	0	00	13	0C	0	B	DM	Disable Monitor clock	Disable Mon. clock reg. (countdown and interrupt) ⑤	– NC –		
03	0	a	14	0C	a	C	LCRD a	Load and enable Clock Double	$(R_a, R_{a+1}) \rightarrow$ RTC; enable countup only	– NC –		
03	0	a	15	0C	a	D	SCRD a	Store Clock Double	(RTC Register) $\rightarrow R_a, R_{a+1}$ ③ ⑤	0	0	X
03	0	00	16	0C	0	E	ECIR	Enable Clock Interrupt	Enable RTC overflow interrupt	– NC –		
03	0	00	17	0C	0	F	DCIR	Disable Clock Interrupt	Disable RTC overflow interrupt	– NC –		
03	3	a	m	0F	a	m	LM a,y,m	Load multiple	$(Y \ldots Y+m-a) \rightarrow R_a \ldots R_m$	– NC –		
# 04	0	a	00	10	a	0	SQR a	Square Root	$\sqrt{(R_a, R_{a+1})} \rightarrow R_{a+1}$; Rem. $\rightarrow R_a$ ③	0	X	X
04	0	a	01	10	a	1	RVR a	Reverse Register	Reverse (R_a)	0	0	X
04	0	a	02	10	a	2	CNT a	Count Ones	Number of binary ones in $R_a \rightarrow R_{a+1}$	– NC –		
04	0	a	03	10	a	3	SFR a	Scale Factor	Shift (R_a, R_{a+1}) left until $(R_a)_{15}$ ③ $\neq (R_a)_{14}$; shift count $\rightarrow R_{a+2}$ ①	– NC –		
04	3	a	m	13	a	m	BLX a,y,m	Byte Load and index by 1	$(Y)_{byte} \rightarrow R_a$; $(Rm)+1 \rightarrow Rm$ ②	0	0	X
05	0	a	m	14	a	m	SBR a,m	Set Bit	$1 \rightarrow (R_a)_m$	0	0	X
05	1	a	m	15	a	m	LXI a,m	Load and index by 1 (Indirect)	$(Y^*) \rightarrow R_a$; $(R_m)+1 \rightarrow R_m$ ②	0	0	X
05	3	a	m	17	a	m	LX a,y,m	Load and index by 1	$(Y) \rightarrow R_a$; $(R_m)+1 \rightarrow R_m$ ②	0	0	X
06	0	a	m	18	a	m	ZBR a,m	Zero Bit	$0 \rightarrow (R_a)_m$	0	0	X
06	1	a	m	19	a	m	LDXI a,m	Load Double Index by 2 (Indirect)	$(Y^*, Y^*+1) \rightarrow R_a, R_{a+1}$; ② ③ ④ $(R_m)+2 \rightarrow R_m$ ④ ③ ②	0	0	X
06	3	a	m	1B	a	m	LDX a,y,m	Load Double, index by 2	$(Y, Y+1) \rightarrow R_a, R_{a+1}$; $(R_m)+2 \rightarrow R_m$ ③ ②	0	0	X
07	0	a	m	1C	a	m	CBR a,m	Compare Bit	Test bit m of R_a for zero	0	0	X
07	1	00	m	1D	0	m	LPI m	Load PSW (Indirect)	$(Y^*, Y^*+1, Y^*+2) \rightarrow$ P, SR1, SR2; enable power fault interrupt	– NA –		
07	3	00	m	1F	0	m	LP y,m	Load PSW	$(Y, Y+1, Y+2) \rightarrow$ P, SR1, SR2; enable power fault interrupt	– NA –		
10	0	a	m	20	a	m	LRSR a,m	Logical Right Shift (Register)	Shift (R_a) right $(R_m)_{5-0}$ places, zero fill	0	0	X
10	2	a	m	22	a	m	LRS a,y,m	Logical Right Shift	Shift (R_a) right Y_{5-0} places, zero fill	0	0	X
10	3	a	m	23	a	m	BS a,y,m	Byte Store	$(R_a)_{7-0} \rightarrow Y_{byte}$	– NC –		
11	0	a	m	24	a	m	ARSR a,m	Algebraic Right Shift (Register)	Shift (R_a) right $(R_m)_{5-0}$ places, sign fill	0	0	X
11	1	a	m	25	a	m	SI a,m	Store (Indirect)	$(R_a) \rightarrow Y^*$	– NC –		
11	2	a	m	26	a	m	ARS a,y,m	Algebraic Right Shift	Shift (R_a) right Y_{5-0} places, sign fill	0	0	X
11	3	a	m	27	a	m	S a,y,m	Store	$(R_a) \rightarrow Y$	– NC –		
12	0	a	m	28	a	m	LRDR a,m	Logical Right Double shift (Register)	Shift (R_a, R_{a+1}) right $(R_m)_{5-0}$ places, zero fill ①	0	0	X
12	1	a	m	29	a	m	SDI a,m	Store Double (Indirect)	$(R_a, R_{a+1}) \rightarrow Y^*, Y^*+1$ ③	– NC –		
12	2	a	m	2A	a	m	LRD a,y,m	Logical Right Double shift	Shift (R_a, R_{a+1}) right Y_{5-0} places, zero fill	0	0	X
12	3	a	m	2B	a	m	SD a,y,m	Store Double	$(R_a, R_{a+1}) \rightarrow Y, Y+1$ ③	– NC –		

Optional Math Pac Instructions ① Count = 31 for all zeros or all ones. ② if $a \neq m$ ③ a,m,y must be even
④ if $a+1 \neq m$ ⑤ cc set on Ra+1 only ⑥ if Class II interrupts enabled

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13 0 a m	2C a m	ARDR a,m	Algebraic Right Double shift	Shift (R_a, R_{a+1}) right $(R_m)_{5-0}$ places, sign fill	0	0	X
13 2 a m	2E a m	ARD a,y,m	Algebraic Right Double shift	Shift (R_a, R_{a+1}) right Y_{5-0} places, sign fill ③	0	0	X
13 3 a m	2F a m	SM a,y,m	Store Multiple	$(R_a \ldots R_m) \rightarrow Y \ldots Y{+}m{-}a$	– NC –		
14 0 a m	30 a m	ALSR a,m	Algebraic Left shift (Register)	Shift (R_a) left $(R_m)_{5-0}$ places, zero fill	0	X	X
14 2 a m	32 a m	ALS a,y,m	Algebraic Left shift	Shift (R_a) left Y_{5-0} places, zero fill	0	X	X
14 3 a m	33 a m	BSX a,y,m	Byte Store, index by 1	$(R_a)_{7-0} \rightarrow Ybyte$; $(R_m)+1 \rightarrow R_m$	– NC –		
15 0 a m	34 a m	CLSR a,m	Circular Left shift (Register)	Shift (R_a) circularly left $(R_m)_{5-0}$ places	0	0	X
15 1 a m	35 a m	SXI a,m	Store index by 1 (Indirect)	$(R_a) \rightarrow Y^*$; $(R_m)+1 \rightarrow R_m$	– NC –		
15 2 a m	36 a m	CLS a,y,m	Circular Left shift	Shift (R_a) circularly left Y_{5-0} places	0	0	X
15 3 a m	37 a m	SX a,y,m	Store, index by 1	$(R_a) \rightarrow Y$; $(R_m)+1 \rightarrow R_m$	–NC –		
16 0 a m	38 a m	ALDR a,m	Algebraic Left Double shift (Register)	Shift (R_a, R_{a+1}) left $(R_m)_{5-0}$ places, zero fill ②	0	X	X
16 1 a m	39 a m	SDXI a,m	Store Double index by 2 (Indirect)	$(R_a, R_{a+1}) \rightarrow Y^*, Y^*{+}1$; $(R_m)+2 \rightarrow R_m$ ②③	– NC –		
16 2 a m	3A a m	ALD a,y,m	Algebraic Left Double shift	Shift (R_a, R_{a+1}) left Y_{5-0} places zero fill ③	0	X	X
16 3 a m	3B a m	SDX a,y,m	Store Double, index by 2	$(R_a, R_{a+1}) \rightarrow (Y, Y{+}1)$; $(R_m)+2 \rightarrow R_m$ ②③	– NC –		
17 0 a m	3C a m	CLDR a,m	Circular Left Double shift (Register)	Shift (R_a, R_{a+1}) circularly left $(R_m)_{5-0}$ places ③	0	0	X
17 1 00 m	3D 0 m	SZI m	Store Zeros (Indirect)	$0 \rightarrow Y^*$	– NC –		
17 2 a m	3E a m	CLD a,y,m	Circular Left Double shift	Shift (R_a, R_{a+1}) circularly left Y_{5-0} places ③	0	0	X
17 3 00 m	3F 0 m	SZ y,m	Store Zeros	$0 \rightarrow Y$	– NC –		
20 0 a m	40 a m	SUR a,m	Subtract (Register)	$(R_a) - (R_m) \rightarrow R_a$	X	X	X
20 1 a m	41 a m	SUI a,m	Subtract (Indirect)	$(R_a) - (Y^*) \rightarrow R_a$	X	X	X
20 2 a m	42 a m	SUK a,y,m	Subtract (Constant)	$(R_a) - Y \rightarrow R_a$	X	X	X
20 3 a m	43 a m	SU a,y,m	Subtract	$(R_a) - (Y) \rightarrow R_a$	X	X	X
21 0 a m	44 a m	SUDR a,m	Subtract Double (Register)	$(R_a, R_{a+1}) - (R_m, R_{m+1}) \rightarrow R_a, R_{a+1}$	X	X	X
21 1 a m	45 a m	SUDI a,m	Subtract Double (Indirect)	$(R_a, R_{a+1}) - (Y^*, Y^*{+}1) \rightarrow R_a, R_{a+1}$ ③	X	X	X
21 3 a m	47 a m	SUD a,y,m	Subtract Double	$(R_a, R_{a+1}) - (Y, Y{+}1) \rightarrow R_a, R_{a+1}$ ③	X	X	X
22 0 a m	48 a m	AR a,m	Add (Register)	$(R_a) + (R_m) \rightarrow R_a$	X	X	X
22 1 a m	49 a m	AI a,m	Add (Indirect)	$(R_a) + (Y^*) \rightarrow R_a$	X	X	X
22 2 a m	4A a m	AK a,y,m	Add (Constant)	$(R_a) + Y \rightarrow R_a$	X	X	X
22 3 a m	4B a m	A a,y,m	Add	$(R_a) + (Y) \rightarrow R_a$	X	X	X
23 0 a m	4C a m	ADR a,m	Add Double (Register)	$(R_a, R_{a+1}) + (R_m, R_{m+1}) \rightarrow R_a, R_{a+1}$	X	X	X
23 1 a m	4D a m	ADI a,m	Add Double (Indirect)	$(R_a, R_{a+1}) + (Y^*, Y^*{+}1) \rightarrow R_a, R_{a+1}$ ③	X	X	X
23 3 a m	4F a m	AD a,y,m	Add Double	$(R_a, R_{a+1}) + (Y, Y{+}1) \rightarrow R_a, R_{a+1}$ ③	X	X	X
24 0 a m	50 a m	CR a,m	Compare (Register)	(R_a): (R_m)	X	X	X
24 1 a m	51 a m	CI a,m	Compare (Indirect)	(R_a): (Y^*)	X	X	X
24 2 a m	52 a m	CK a,y,m	Compare (Constant)	(R_a): Y	X	X	X
24 3 a m	53 a m	C a,y,m	Compare	(R_a): (Y)	X	X	X
25 0 a m	54 a m	CDR a,m	Compare Double (Register)	(R_a, R_{a+1}): (R_m, R_{m+1}) ③	X	X	X
25 1 a m	55 a m	CDI a,m	Compare Double (Indirect)	(R_a, R_{a+1}): $(Y^*, Y^*{+}1)$ ③	X	X	X
25 3 a m	57 a m	CD a,y,m	Compare Double	(R_a, R_{a+1}): $(Y, Y{+}1)$ ③	X	X	X
26 0 a m	58 a m	MR a,m	Multiply (Register)	$(R_{a+1}) \cdot (R_m) \rightarrow R_a, R_{a+1}$ ③	0	0	X
26 1 a m	59 a m	MI a,m	Multiply (Indirect)	$(R_{a+1}) \cdot (Y^*) \rightarrow R_a, R_{a+1}$ ③	0	0	X
26 2 a m	5A a m	MK a,y,m	Multiply (Constant)	$(R_{a+1}) \cdot Y \rightarrow R_a, R_{a+1}$ ③	0	0	X
26 3 a m	5B a m	M a,y,m	Multiply	$(R_{a+1}) \cdot (Y) \rightarrow R_a, R_{a+1}$ ③	0	0	X
27 0 a m	5C a m	DR a,m	Divide (Register)	$(R_a, R_{a+1}) / (R_m) \rightarrow R_{a+1}$; remainder $\rightarrow R_a$ ③	X	X	X
27 1 a m	5D a m	DI a,m	Divide (Indirect)	$(R_a, R_{a+1}) / (Y^*) \rightarrow R_{a+1}$; remainder $\rightarrow R_a$	X	X	X
27 2 a m	5E a m	DK a,y,m	Divide (Constant)	$(R_a, R_{a+1}) / Y \rightarrow R_{a+1}$; remainder $\rightarrow R_a$ ③	X	X	X
27 3 a m	5F a m	D a,y,m	Divide	$(R_a, R_{a+1}) / (Y) \rightarrow R_{a+1}$; remainder $\rightarrow R_a$ ③	X	X	X
30 0 a m	60 a m	ANDR a,m	AND (Register)	$(R_a) \wedge (R_m) \rightarrow R_a$	0	0	X
30 1 a m	61 a m	ANDI a,m	AND (Indirect)	$(R_a) \wedge (Y^*) \rightarrow R_a$	0	0	X
30 2 a m	62 a m	ANDK a,y,m	AND (Constant)	$(R_a) \wedge Y \rightarrow R_a$	0	0	X
30 3 a m	63 a m	AND a,y,m	AND	$(R_a) \wedge (Y) \rightarrow R_a$	0	0	X
31 0 a m	64 a m	ORR a,m	OR (Register)	$(R_a) \vee (R_m) \rightarrow R_a$	0	0	X
31 1 a m	65 a m	ORI a,m	OR (Indirect)	$(R_a) \vee (Y^*) \rightarrow R_a$	0	0	X
31 2 a m	66 a m	ORK a,y,m	OR (Constant)	$(R_a) \vee Y \rightarrow R_a$	0	0	X
31 3 a m	67 a m	OR a,y,m	OR	$(R_a) \vee (Y) \rightarrow R_a$	0	0	X
32 0 a m	68 a m	XORR a,m	Exclusive OR (Register)	$(R_a) \forall (R_m) \rightarrow R_a$	0	0	X
32 1 a m	69 a m	XORI a,m	Exclusive OR (Indirect)	$(R_a) \forall (Y^*) \rightarrow R_a$	0	0	X
32 2 a m	6A a m	XORK a,y,m	Exclusive OR (Constant)	$(R_a) \forall Y \rightarrow R_a$	0	0	X
32 3 a m	6B a m	XOR a,y,m	Exclusive OR	$(R_a) \forall (Y) \rightarrow R_a$	0	0	X
33 0 a m	6C a m	MSR a,m	Masked Substitute (Register)	If $(R_{a+1})_n = 1$; $(R_m)_n \rightarrow R_{an}$ ③	0	0	X
33 1 a m	6D a m	MSI a,m	Masked Substitute (Indirect)	If $(R_{a+1})_n = 1$; $(Y^*)_n \rightarrow R_{an}$ ③	0	0	X
33 2 a m	6E a m	MSK a,y,m	Masked Substitute (Constant)	If $(R_{a+1})_n = 1$; $Y_n \rightarrow R_{an}$ ③	0	0	X
33 3 a m	6F a m	MS a,y,m	Masked Substitute	If $(R_{a+1})_n = 1$; $(Y)_n \rightarrow R_{an}$ ③	0	0	X
34 0 a m	70 a m	CMR a,m	Compare Masked (Register)	$[(R_a) \wedge (R_{a+1})] : [(R_m) \wedge (R_{a+1})]$ ①	0	0	X

① if $a \neq m$ ③ a,m,y must be even

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34 1 a m	71 a m	CMI a,m	Compare Masked (Indirect)	$[(R_a) \wedge (R_{a+1})] : [(Y^*) \wedge (R_{a+1})]$ ②	0	0	X
34 2 a m	72 a m	CMK a,y,m	Compare Masked (Constant)	$[(R_a) \wedge (R_{a+1})] : [Y \wedge (R_{a+1})]$ ②	0	0	X
34 3 a m	73 a m	CM a,y,m	Compare Masked	$[(R_a) \wedge (R_{a+1})] : [(Y) \wedge (R_{a+1})]$ ②	0	0	X
35 0 00 00	74 0 0	IOCR	Input/Output Command	Execute (0140); $0 \rightarrow 0140_{15,14}$	– NC –		
35 1 00 m	75 0 m	BFI m	Biased Fetch (Indirect)	$(Y^*) \rightarrow CC$; $1 \rightarrow Y^*_{15,14}$	0	0	X
35 2 00 m	76 0 m	REX y,m	Remote Execute	Execute (Y); $(P) + 2 \rightarrow P$	– NA –		
35 3 00 m	77 0 m	BF y,m	Biased Fetch	$(Y) \rightarrow CC$; $1 \rightarrow Y_{15,14}$	0	0	X
#37 0 a m	7C a 0	See page 6	Trig & Hyperbolic		– NC –		
#37 0 a 010	7C a 8	FC a,y	Floating Point Compare	(Ra, Ra+1): (Y, Y+1) ⑦ ⑧	0	0	X
#37 0 a 011	7C a 9	FXD a	Fixed to Floating Point Conversion	Form normalized Floating Point number in Ra, Ra+1, from the binary exponent in R_a and integer mantissa in R_{a+1} (2's complement)	X	X	X
#37 0 a 012	7C a A	FLC a	Floating Point to Fixed Conversion	Unpack Floating Point number in R_a, R_{a+1} into binary exponent in R_a and integer mantissa into R_{a+1}	0	0	X
#37 0 a 013	7C a B	NF a	Floating Point Normalize	Normalize the Floating Point number in R_a and R_{a+1}.	X	X	X
#37 0 a 016	7C a E	DAL a,y	Algebraic Left Duadruple Shift	Shift $(R_a, R_{a+1}, R_{a+2}, R_{a+3})$ Left Y_{5-0} places, zero fill ⑦	0	X	X
#37 0 a 017	7C a F	DAR a,y	Algebraic Right Duadruple Shift	Shift $(R_a, R_{a+1}, R_{a+2}, R_{a+3})$ Right Y_{5-0} places, sign fill ⑦	0	0	X
40 0 00 m	80 0 m	JER m	Jump Equal	If CC indicates = or 0; $(R_m) \rightarrow P$	– NC –		
40 0 01 m	80 1 m	JNER m	Jump Not Equal	If CC indicates ≠ or not 0; $(R_m) \rightarrow P$	– NC –		
40 0 02 m	80 2 m	JGER m	Jump Greater or Equal	If CC indicates ≥ or +; $(R_m) \rightarrow P$	– NC –		
40 0 03 m	80 3 m	JLSR m	Jump Less	If CC indicates < or –; $(R_m) \rightarrow P$	– NC –		
40 0 04 m	80 4 m	JDR m	Jump Overflow	If overflow set: $(R_m) \rightarrow P$	– NC –		
40 0 05 m	80 5 m	JCR m	Jump Carry	If carry set: $(R_m) \rightarrow P$	– NC –		
40 0 06 m	80 6 m	JPTR m	Jump Power out of Tolerance	If power out of tolerance: $(R_m) \rightarrow P$	– NC –		
40 0 07 m	80 7 m	JBR m	Jump Bootstrap 2 selected	If bootstrap 2 selected: $(R_m) \rightarrow P$	– NC –		
40 0 10 m	80 8 m	JR m	Jump	$(R_m) \rightarrow P$	– NC –		
40 0 11 m	80 9 m	JSR m	Jump after Stop	Stop; $(R_m) \rightarrow P$	– NC –		
40 0 12 m	80 A m	JKSR 1,m	Jump, If Key set–Stop, then jump (Register)	If key 1 set , stop; $(R_m) \rightarrow P$	– NC –		
40 0 13 m	80 B m	JKSR 2,m	Jump, If Key set–Stop, then jump (Register)	If key 2 set , stop; $(R_m) \rightarrow P$	– NC –		
40 1 d	81 d	LJ xD	Local Jump	$(P) + D \rightarrow P$	– NC –		
40 2 00 m	82 0 m	JE y,m	Jump Equal	If CC indicates = or 0; $Y \rightarrow P$	– NC –		
40 2 01 m	82 1 m	JNE y,m	Jump Not Equal	If CC indicates ≠ or not 0; $Y \rightarrow P$	– NC –		
40 2 02 m	82 2 m	JGE y,m	Jump Greater than or Equal	If CC indicates ≥ or +; $Y \rightarrow P$	– NC –		
40 2 03 m	82 3 m	JLS y,m	Jump Less	If CC indicates < or –; $Y \rightarrow P$	– NC –		
40 2 04 m	82 4 m	JD y,m	Jump on Overflow	If overflow set: $Y \rightarrow P$	– NC –		
40 2 05 m	82 5 m	JC y,m	Jump on Carry	If carry set, $Y \rightarrow P$	– NC –		
40 2 06 m	82 6 m	JPT y,m	Jump if Power out of Tolerance	If power out of tolerance; $Y \rightarrow P$	– NC –		
40 2 07 m	82 7 m	JB y,m	Jump if Bootstrap 2 selected	If bootstrap 2 selected; $Y \rightarrow P$	– NC –		
40 2 10 m	82 8 m	J y,m	Jump	$Y \rightarrow P$	– NC –		
40 2 11 m	82 9 m	JS y,m	Jump after Stop	Stop; $Y \rightarrow P$	– NC –		
40 2 12 m	82 A m	JKS 1,y,m	Jump, If Key set–Stop, then jump	If key 1 set , stop; $Y \rightarrow P$	– NC –		
40 2 13 m	82 B m	JKS 2,y,m	Jump, If Key set–Stop, then jump	If key 2 set , stop; $Y \rightarrow P$	– NC –		
40 3 00 m	83 0 m	JE *y,m	Jump Equal	If CC indicates = or 0; $(Y) \rightarrow P$	– NC –		
40 3 01 m	83 1 m	JNE *y,m	Jump Not Equal	If CC indicates ≠ or not 0; $(Y) \rightarrow P$	– NC –		
40 3 02 m	83 2 m	JGE *y,m	Jump Greater or Equal	If CC indicates ≥ or +; $(Y) \rightarrow P$	– NC –		
40 3 03 m	83 3 m	JLS *y,m	Jump Less	If CC indicates < or –; $(Y) \rightarrow P$	– NC –		
40 3 04 m	83 4 m	JD *y,m	Jump on Overflow	If overflow set; $(Y) \rightarrow P$	– NC –		
40 3 05 m	83 5 m	JC *y,m	Jump on Carry	If carry set; $(Y) \rightarrow P$	– NC –		
40 3 06 m	83 6 m	JPT *y,m	Jump if Power out of Tolerance	If power out of tolerance; $(Y) \rightarrow P$	– NC –		
40 3 07 m	83 7 m	JB *y,m	Jump if Bootstrap 2 selected	If bootstrap 2 selected; $(Y) \rightarrow P$	– NC –		
40 3 10 m	83 8 m	J *y,m	Jump	$(Y) \rightarrow P$	– NC –		
40 3 11 m	83 9 m	JS *y,m	Jump After Stop	Stop; $(Y) \rightarrow P$	– NC –		
40 3 12 m	83 A m	JKS 1,*y,m	Jump, If Key set–Stop, then jump	If key 1 set, stop; $(Y) \rightarrow P$	– NC –		
40 3 13 m	83 B m	JKS 2,*y,m	Jump, If Key set–Stop, then jump	If key 2 set, stop; $(Y) \rightarrow P$	– NC –		
41 0 a m	84 a m	XJR a,m	Index Jump Register	If $(R_a) \neq 0$; $(R_a) - 1 \rightarrow R_a$, $(R_m) \rightarrow P$	– NC –		
41 1 d	85 d	LJI xD	Local Jump (Indirect)	$[(P) + D] \rightarrow P$	– NC –		
41 2 a m	86 a m	XJ a,y,m	Index Jump	If $(R_a) \neq 0$; $(R_a) - 1 \rightarrow R_a$; $Y \rightarrow P$	– NC –		
41 3 a m	87 a m	XJ a,*y,m	Index Jump	If $(R_a) \neq 0$; $(R_a) - 1 \rightarrow R_a$; $(Y) \rightarrow P$	– NC –		

Optional Math Pac Instruction

③ a,m,y must be even ⑦ cannot be executed via execute remote ⑧ operands must be normalized

OCTAL FORMAT o f a m	HEXIDECIMAL FORMAT OP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
42 0 a m	88 a m	JLRR a,m	Jump, Link Register (Register)	(P) + 1 → R_a; (R_m) → P	– NC –
42 2 a m	8A a m	JLR a,y,m	Jump, Link Register	(P) + 2 → R_a; Y → P	– NC –
42 3 a m	8B a m	JLR a,*y,m	Jump, Link Register	(P) + 2 → R_a; (Y) → P	– NC –
43 1 d	80 d	LJLM xD	Local Jump, Link Memory	(P) + 1 → (P) + D; (P) + D + 1 → P	– NC –
43 2 00 m	8E 0 m	JLM y,m	Jump, Link Memory	(P) + 2 → Y; Y + 1 → P	– NC –
43 3 00 m	8F 0 m	JLM *y,m	Jump, Link Memory	(P) + 2 → (Y); (Y) + 1 → P	– NC –
44 0 a m	90 a m	JZR a,m	Jump Zero (Register)	If (R_a) = 0; (R_m) → P	– NC –
44 1 d	91 d	LJE xD	Local Jump Equal	If CC indicates = or 0; (P) + D → P	– NC –
44 2 a m	92 a m	JZ a,y,m	Jump Zero	If (R_a) = 0; Y → P	– NC –
44 3 a m	93 a m	JZ a,*y,m	Jump Zero	If (R_a) = 0; (Y) → P	– NC –
45 0 a m	94 a m	JNZR a,m	Jump Not Zero (Register)	If (R_a) ≠ 0; (R_m) → P	– NC –
45 1 d	95 d	LJNE xD	Local Jump Not Equal	If CC indicates ≠ or not 0; (P) + D → P	– NC –
45 2 a m	96 a m	JNZ a,y,m	Jump Not Zero	If (R_a) ≠ 0; Y → P	– NC –
45 3 a m	97 a m	JNZ a,*y,m	Jump Not Zero	If (R_a) ≠ 0; (Y) → P	– NC –
46 0 a m	98 a m	JPR a,m	Jump Positive (Register)	If (R_a) ≥ 0; (R_m) → P	– NC –
46 1 d	99 d	LJGE xD	Local Jump Greater or Equal	If CC indicates ≥ or +; (P) + D → P	– NC –
46 2 a m	9A a m	JP a,y,m	Jump Positive	If (R_a) ≥ 0; Y → P	– NC –
46 3 a m	9B a m	JP a,*y,m	Jump Positive	If (R_a) ≥ 0; (Y) → P	– NC –
47 0 a m	9C a m	JNR a,m	Jump Negative (Register)	If (R_a) < 0; (R_m) → P	– NC –
47 1 d	9D d	LJLS xD	Local Jump Less	If CC indicates < or - ; (P) + D → P	– NC –
47 2 a m	9E a m	JN a,y,m	Jump Negative	If (R_a) < 0; Y → P	– NC –
47 3 a m	9F a m	JN a,*y,m	Jump Negative	If (R_a) < 0; (Y) → P	– NC –
# 50 0 a m	A0 a m	FSUR a,m	Floating point subtract (Register)	(R_a, R_{a+1}) - (R_m, R_{m+1}) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 50 1 a m	A1 a m	FSU a,m	Floating point Subtract (Indirect)	(R_a, R_{a+1}) - (Y*, Y*+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 50 3 a m	A3 a m	FSU a,y,m	Floating point Subtract	(R_a, R_{a+1}) - (Y, Y+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 51 0 a m	A4 a m	FAR a,m	Floating point Add (Register)	(R_a, R_{a+1}) + (R_m, R_{m+1}) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 51 1 a m	A5 a m	FAI a,m	Floating point Add (Indirect)	(R_a, R_{a+1}) + (Y*, Y*+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3} ③	X X X
# 51 3 a m	A7 a m	FA a,y,m	Floating point Add	(R_a, R_{a+1}) + (Y, Y+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 52 0 a m	A8 a m	FMR a,m	Floating point Multiply (Register)	(R_a, R_{a+1}) · (R_m, R_{m+1}) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 52 1 a m	A9 a m	FMI a,m	Floating Point Multiply (Indirect)	(R_a, R_{a+1}) · (Y*, Y*+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 52 3 a m	AB a m	FM a,y,m	Floating Point Multiply	(R_a, R_{a+1}) · (Y, Y+1) → R_a, R_{a+1}; Res. → R_{a+2}, R_{a+3}	X X X
# 53 0 a m	AC a m	FDR a,m	Floating point Divide (Register)	(R_a, R_{a+1}) / (R_m, R_{m+1}) → R_a, R_{a+1}; Rem. → R_{a+2}, R_{a+3}	X X X
# 53 1 a m	AD a m	FDI a,m	Floating point Divide (Indirect)	(R_a, R_{a+1}) / (Y*, Y*+1) → R_a, R_{a+1}; Rem. → R_{a+2}, R_{a+3}	X X X
# 53 3 a m	AF a m	FD a,y,m	Floating point Divide	(R_a, R_{a+1}) / (Y, Y+1) → R_a, R_{a+1}; Rem. → R_{a+2}, R_{a+3}	X X X
*54 0 a m	B0 a m	LARR a,m	Load Address Register (Register)	(R_m) → AR_r SEE LEGEND	– NC –
*54 1 a m	B1 a m	LARI a,m	Load Address Register (Indirect)	(Y*) → AR_r	– NC –
*54 3 a m	B3 a m	LARM a,y,m	Load Address Register Multiple	(Y, ... Y + u) → AR_r . . . . AR_{r+u}	– NC –
*55 0 a m	B4 a m	SARR a,m	Store Address Register (Register)	(AR_r) → R_m	– NC –
*55 1 a m	B5 a m	SARI a,m	Store Address Register (Indirect)	(AR_r) → Y*	– NC –
*55 3 a m	B7 a m	SARM a,y,m	Store Address Register Multiple	(AR_r, . . . AR_{r+u}) → Y, . . . Y + u	– NC –
# 56 0 a m	B8 a m	MDR a,m	Multiply Double (Register)	(R_a, R_{a+1}) · (R_m, R_{m+1}) → R_a, R_{a+1}, R_{a+2}, R_{a+3} ③	0 0 X
# 56 1 a m	B9 a m	MDI a,m	Multiply Double (Indirect)	(R_a, R_{a+1}) · (Y*, Y*+1) → R_a, R_{a+1}, R_{a+2}, R_{a+3} ③	0 0 X
# 56 3 a m	BB a m	MD a,y,m	Multiply Double	(R_a, R_{a+1}) · (Y, Y+1) → R_a, R_{a+1}, R_{a+2}, R_{a+3} ③	0 0 X
# 57 0 a m	BC a m	DDR a,m	Divide Double (Register)	(R_a, R_{a+1}, R_{a+2}, R_{a+3}) / (R_m, R_{m+1}) → R_{a+2}, R_{a+3}; Rem. → R_a, R_{a+1} ③	0 X X
# 57 1 a m	BD a m	DDI a,m	Divide Double (Indirect)	(R_a, R_{a+1}, R_{a+2}, R_{a+3}) / (Y*, Y*+1) → R_{a+2}, R_{a+3}; Rem. → R_a, R_{a+1} ③	0 X X
# 57 3 a m	BF a m	DD a,y,m	Divide Double	(R_a, R_{a+1}, R_{a+2}, R_{a+3}) / (Y, Y+1) → R_{a+2}, R_{a+3}; Rem. → R_a, R_{a+1} ③	0 X X
60 0 a m	C0 a m	LLRS a,m	Literal Logical Right Shift	Shift (R_a) right m places, zero fill	0 0 X
60 1 a m	C1 a m	LARS a,m	Literal Algebraic Right Shift	Shift (R_a) right m places, sign fill	0 0 X
60 2 a m	C2 a m	LLRD a,m	Literal Logical Right Double shift	Shift (R_a, R_{a+1}) right m places, zero fill ③	0 0 X

\# Optional Math Pac Instructions

③ a,m,y must be even

*See Expanded Memory Legend

OCTAL FORMAT o f a m	HEXIDECIMAL FORMAT DP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
60 3 a m	C3 a m	LARD a,m	Literal Algebraic Right Double shift	Shift (R_a, R_{a+1}) right m places, sign fill ③	0 0 X
61 0 a m	C4 a m	LALS a,m	Literal Algebraic Left Shift	Shift (R_a) left m places, zero fill	0 X X
61 1 a m	C5 a m	LCLS a,m	Literal Circular Left Shift	Shift (R_a) left circular m places	0 0 X
61 2 a m	C6 a m	LALD a,m	Literal Algebraic Left Double shift	Shift (R_a, R_{a+1}) left m places, zero fill ③	0 X X
61 3 a m	C7 a m	LCLD a,m	Literal Circular Left Double shift	Shift (R_a, R_{a+1}) left circular m places ③	0 0 X
62 0 a m	C8 a m	LSU a,m	Literal Subtract	(R_a) - m → R_a	X X X
62 1 a m	C9 a m	LSUD a,m	Literal Subtract Double	(R_a, R_{a+1}) - m → R_a, R_{a+1} ③	X X X
62 2 a m	CA a m	LA a,m	Literal Add	(R_a) + m → R_a	X X X
62 3 a m	CB a m	LAD a,m	Literal Add Double	(R_a, R_{a+1}) + m → R_a, R_{a+1} ③	X X X
63 0 a m	CC a m	LL a,m	Literal Load	m → R_a	0 0 X
63 1 a m	CD a m	LC a,m	Literal Compare	(R_a) : m	X X X
63 2 a m	CE a m	LMUL a,m	Literal Multiply	(R_{a+1}) · m → R_a, R_{a+1} ③	0 0 X
63 3 a m	CF a m	LDIV a,m	Literal Divide	(R_a, R_{a+1}) / m → R_{a+1}; ③ remainder → R_a	0 X X
64 3 a m	D3 a m	BSU a,y,m	Byte Subtract	(R_a) - (Y) $_{byte}$ → R_a	X X X
65 3 a m	D7 a m	BA a,y,m	Byte Add	(R_a) + (Y) $_{byte}$ → R_a	X X X
66 3 a m	DB a m	BC a,y,m	Byte Compare	(R_a) : (Y) byte	X X X
67 0 a m	DC a m	UM1 a,m UM2 a,m	User Macro – CP	Reserved for User Macro	–NA–
67 1 a m	DD a . m	UMI a,m	User Macro – CP	Reserved for User Macro	–NA–
67 2 a m	DE a m	UMK a,y,m	User Macro – CP	Reserved for User Macro	–NA–
67 3 a m	DF a m	BCX a,y,m	Byte Compare and Index By 1	(R_a) : (Y) $_{byte}$; (R_m) + 1 → R_m	X X X

COMMAND/CHAIN INSTRUCTION

70 0 00 00	E0 0 0	ACR 0 CCR 0,0	Channel Control	Master clear all channels	
70 0 00 04	E0 0 4	ACR 4 CCR 0,4	Channel Control	Enable external interrupts, all channels	
70 0 00 05	E0 0 5	ACR 5 CCR 0,5	Channel Control	Disable external interrupts, all channels	
70 0 00 06	E0 0 6	ACR 6 CCR 0,6	Channel Control	Enable Class !!!, Priority 2, 3, 4 interrupts	
70 0 00 07	E0 0 7	ACR 7 CCR 0,7	Channel Control	Disable Class !!!, Priority 2, 3, 4 interrupts	
70 0 a 10	E0 a 8	CCR a,10	Channel Control	Master clear chan. a	
70 0 a 14	E0 a C	CCR a,14	Channel Control	Enable chan. a external interrupts	
70 0 a 15	E0 a D	CCR a,15	Channel Control	Disable chan. a external interrupts	
70 0 a 16	E0 a E	CCR a,16	Channel Control	Enable chan. a Class !!!, Priority 2, 3, 4 interrupts	
70 0 a 17	E0 a F	CCR a,17	Channel Control	Disable chan. a Class !!!, Priority 2, 3, 4 interrupts	
72 0 a m			User Macro – I/O	Reserved for User Macro	
72 1 a m			User Macro – I/O	Reserved for User Macro	

COMMAND INSTRUCTION

71 2 a 02	E6 a 2	ICK a,y	Initiate Input Chain	Y → Channel a Chain Pointer; initiate input chain	
71 2 a 06	E6 a 6	OCK a,y	Initiate Output Chain	Y → Channel a Chain Pointer; initiate output chain	
71 3 a m	E7 a m	WIM a,y,m WCM am,y	Write Control Memory	(Y) → Chan. a CM_m } See I/O CTL MEM Page 9	
72 3 a m	E8 a m	RIM a,y,m RCM am,y	Read Control Memory	Chan. a (CM_m) → Y } See I/O CTL MEM Page 9	
76 0 a m	FB a m	SICR a,m	Serial Interface Control	Set or clear chan. a I/O discrete function	
76 3 a 00	FB a m	SST a,y	Store Serial Status	Channel a Serial Status bits → Y per Page 10	

CHAIN INSTRUCTION

70 3 00 00	E3 0 0	IO 0,y	Input Data	(Y, Y+1) → BWC, BAP; Initiate transfer	
70 3 01 00	E3 1 0	IO 1,y	Output Data	(Y, Y+1) → BWC, BAP; Initiate transfer	
70 3 02 00	E3 2 0	IO 2,y	External Function	(Y, Y+1) → BWC, BAP; Initiate transfer	
70 3 03 00	E3 3 0	IO 3,y	Force External Function	(Y, Y+1) → BWC, BAP; Initiate transfer	
71 2 00 m	E6 0 m	LCMK m,y	Load Control Memory	Y → CM_m (See I/O Memory) { initiate input chain, m = 2 initiate output chain, m = 6	
71 3 00 m	E7 0 m	LCM m,y	Load Control Memory	(Y) → CM_m (See I/O Memory)	
72 3 00 m	E8 0 m	SCM m,y	Store Control Memory	CM_m → Y (See I/O Memory)	
73 0 00 00	EC 0 0	HCR	Halt Chain	Halt chaining	
73 0 01 00	EC 1 0	IPR	Interrupt Processor	Generate chain interrupt	
73 3 00 00	EF 0 0	ZF y	Zero Flag	0 → Y, 15,14	
73 3 01 00	EF 1 0	SF y	Set Flag	1 → Y, 15,14	
74 2 00 00	F2 0 0	SJMC 0,y	Serial Jump on Mat Condition	Unconditional Y → CAP	
74 2 01 00	F2 1 0	SJMC 1,y	Serial Jump on Mat Condition	If suppress flag not sat, Y → CAP	
74 2 02 00	F2 2 0	SJMC 2,y	Serial Jump on Mat Condition	If monitor flag set, Y → CAP	
75 0 00 m	F4 0 m	SFSC m	Search For Sync	Perform function(s) assigned to m-bits per Page 10	
76 0 00 m	F8 0 m	CSIR m	Serial Interface Control	Set or clear discrete function per Page 10	
76 3 00 00	FB 0 m	CSST y	Store Serial Status	Serial Status bits → Y; See Page 10	

③ a,m,y must be even

#TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS
(Operation Code 37)

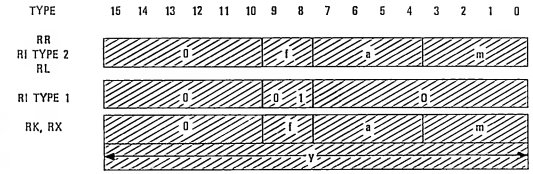
x, y — Cartesian coordinates. Radix point assumed to be the same
θ — Angle of rotation Trignonometric mode (BAMS) Bit 15 = 180°
v — Angle of rotation Hyperbolic mode Radix point assumed between bits 15 and 14
K — 0.46672_8
K_1 — 1.15217_8

Note: 0 results are ±1 LSB

o f a m	CODING FORMAT	FUNCTION	INPUT PARAMETERS R_a	R_{a+1}	R_{a+2}	OUTPUT RESULTS $Y \rightarrow R_a$	$X \rightarrow R_{a+1}$	$W \rightarrow R_{a+2}$
37 0 a 00	VF a	Trigonometric vector	y	x	0	0	$X = \frac{R}{K}\sqrt{X^2+Y^2}$	$W = \theta = \tan^{-1}\frac{y}{x}$
37 0 a 01	RF a	Trigonometric rotate	y	x	θ	$Y = \frac{y\cos\theta + x\sin\theta}{K}$	$X = \frac{x\cos\theta - y\sin\theta}{K}$	0
37 0 a 02	VFP a	Trig. vector with prescale	y	x	0	0	$X = R\sqrt{X^2+Y^2}$	$W = \theta = \tan^{-1}\frac{y}{x}$
37 0 a 03	RFP a	Trig. rotate with prescale	y	x	θ	$Y = y\cos\theta + x\sin\theta$	$X = x\cos\theta - y\sin\theta$	0
37 0 a 04	VH a	Hyperbolic vector	y	x	0	0	$X = \sqrt{X^2-Y^2}$	$W = v = \tanh^{-1}\frac{y}{x}$
37 0 a 05	RH a	Hyperbolic rotate	y	x	v	$Y = \frac{y\cosh v + x\sinh v}{K_1}$	$X = \frac{x\cosh v + y\sinh v}{K_1}$	0
37 0 a 06	VHP a	Hyp. vector with postscale	y	x	0	0	$X = R\sqrt{X^2-Y^2}$	$W = v = \tanh^{-1}\frac{y}{x}$
37 0 a 07	RHP a	Hyp. rotate with postscale	y	x	v	$Y = y\cosh v + x\sinh v$	$X = x\cosh v + y\sinh v$	0
37 0 a 01	RF a	Sin θ; Cos θ	0	0.46672_8	θ	$Y = \sin\theta$	$X = \cos\theta$	0
37 0 a 03	RFP a	Sin θ; Cos θ	0	1	θ	$Y = \sin\theta$	$X = \cos\theta$	0
37 0 a 01	RF a	Polar to Cartesian without prescale	0	R	θ	$Y = \frac{R\sin\theta}{K}$	$X = \frac{R\cos\theta}{K}$	0
37 0 a 03	RFP a	Polar to Cartesian with prescale	0	R	θ	$Y = R\sin\theta$	$X = R\cos\theta$	0
37 0 a 06	VHP a	$\text{Log}_e x$	x−1	x+1	0	0	$2\sqrt{x}$	$W = 1/2\ \log_e x = \tanh^{-1}\frac{x-1}{x+1}$
37 0 a 07	RHP a	Exponential	1	1	v	$Y = e^v = \cosh v + \sinh v$	$X = e^v = \cosh v + \sinh v$	0

#Optional Math Pac Instructions

INSTRUCTION WORD FORMAT



DEFINITION OF FIELDS

- 0 — Operation (Function) Code
- f — Format Designator
  - 00 ⇒ Format RR, Register to Register or RL-1 Format
  - 01 ⇒ Format RI, Register Indirect Memory or RL-2 Format
  - 10 ⇒ Format RK, Register-Literal Constant or RL-3 Format
  - 11 ⇒ Format RX, Register-Indexed Address, Constant or RL-4 Format
- a — General Register or Subfunction Designator
- m — General Register or Subfunction Designator
  4-bit Unsigned Literal Constant in RL Format
- D — Signed Deviation Value (Two's Complement)
- y — Address or Arithmetic Constant

LEGEND

- B — Byte pointer, 0 ⇒ Upper, 1 ⇒ Lower
- C — Carry
- CC — Condition Code
- OV — Overflow
- IW — Indirect Word
- J — Designator Field in IW
- x — General Register Designator in IW1
- y — Contents of Second Instruction Word or IW2
- Y — Effective Operand Address or Constant
- Y* — Effective Operand Address in R_m
- TM — I/O Transfer Mode
  - 00 – Abort Input Transfer
  - 01 – 8-bit Byte Transfer
  - 10 – 16-bit Word Transfer
  - 11 – 32-bit Dual Word Transfer
- BWC — Buffer Word Count*
- BAP — Buffer Address Pointer
- CM — Control Memory Word
- CAP — Chain Address Pointer
- RTC — Real-Time Clock
- ( ) — Contents of register or address
- r — (R_a) 5–0 } AN/UYK–20
- u — (R_a) 13–8 }
- r — (R_a) 7–0 } AN/UYK–20A
- u — (R_a) 15–8
- : — Compare
- ' — 2's Complement

PAGE SETS — SR 1 Bits 5–4

- 00 Page Set 0
- 01 Page Set 1
- 10 Page Set 2
- 11 Page Set 3

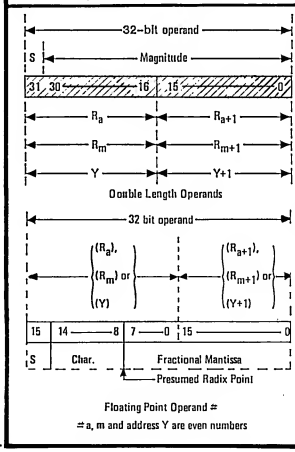
OR	0	1
0	0	1
1	1	1

XOR	0	1
0	0	1
1	1	0

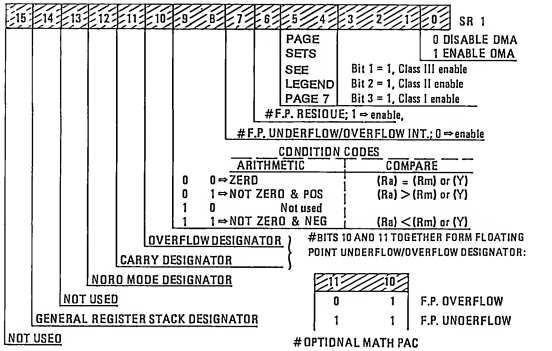
AND	0	1
0	0	0
1	0	1

*NOTE: If BWC = zero (0000), indicates the maximum number of transfers (4096).

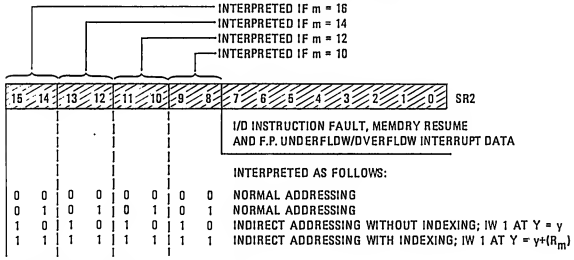
FORMAT	OPERAND FORMATION
RR	Operand = (R_m)
RI-1	Local Jump Address Y = (P) + xD
RI-2	Operand at Y* = (R_m)
RK	Operand Y = y + (R_m) if m ≠ 0 Operand Y = y if m = 0
RX Word	Operand at Y = y if m = 0 Operand at Y = y + (R_m) if m ≠ 0,10,12,14,16 Operand at indirect address if m = 10,12,14,16
RX Byte	Operand at Y upper if m = 0 Operand at Y = $(R_m)/2$ + y if m ≠ 0,10,12,14,16; B = (R_m) 0 Operand at indirect address if m = 10,12,14,16
RL	Operand = m (an absolute literal)



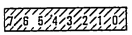
STATUS REGISTER NO. 1 FORMAT



STATUS REGISTER NO. 2 FORMAT



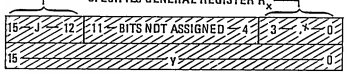
SR2 BIRS 7–0 INTERPRETED AS FOLLOWS:



C C C C 0 X 1 0 CHAIN INSTRUCTION CCCC = CHAN #; X = 0 ⇒ INPUT; X = 1 ⇒ DUTPUT
0 0 0 0 0 0 0 1 COMMAND INSTRUCTION
1 M M M 0 0 1 0 MEMDRY RESUME INTERRUPT; MMM = 8K MOD. NO. (UYK-20) OR 32K (UYK-20A).
←IR 11-4→ F.P. UNDERFLOW/OVERFLOW INTERRUPT

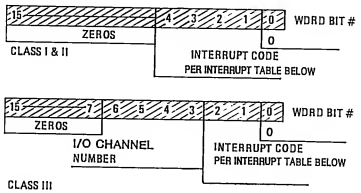
INDIRECT ADDRESSING

OCTAL J-VALUE	DPERAND/IW1, LOCATION
0	WORD AT Y = (IW2) BYTE AT UPPER HALF OF Y = (IW2)
1	WORD AT Y = (IW2) + (R_x) BYTE AT Y = (IW2) + (R_x) */2
2	WORD AT Y = (IW2) + (R_m) BYTE AT Y = (IW2) + (R_m)*/2
3	WORD AT Y = (IW2) + (R_{m+1}) BYTE AT Y = (IW2) + (R_{m+1}) */2
4	NEXT IW 1 AT ADDRESS Y = (IW2)
5	NEXT IW 1 AT ADDRESS Y = (IW2) + (R_x)
6	NEXT IW 1 AT ADDRESS Y = (IW2) + (R_m)
7	NEXT IW 1 AT ADDRESS Y = (IW2) + (R_{m+1})
10-17	NDT ASSIGNED



* B = LSB of register

INTERRUPT ENTRANCE ADDRESS INDEX



ASSIGNED MEMORY ADDRESS

Function	Address Assignment to Class III	II	I
Store P addresses	110	120	130
Store SR # 1 addresses	111	121	131
Store SR # 2 addresses	112	122	132
Store RTC lower addresses	113	123	133
P Reload addresses	114	124	134
SR #1 Reload addresses	115	125	135
SR #2 Reload addresses	116	126	136
Store RTC upper addresses	117	127	137
I/O Command cells	140-141		
Auto start entrance	177		
External interrupt word storage	200-217		
NDRO	00-77, 300-477		

INTERRUPT PRIORITY

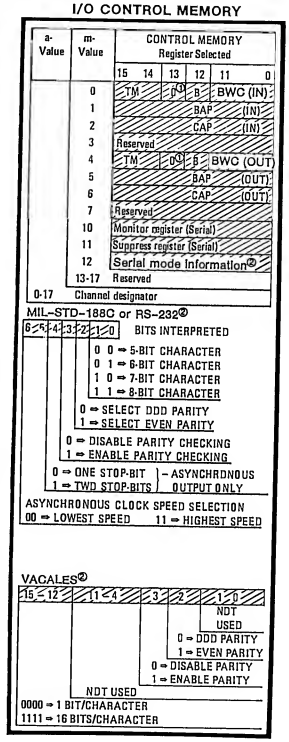
Class	Priority Within Class	Interrupt	Binary Interrupt Code Generated
Class I, Hardware Errors	1	Power Fault	0000
	2	Memory Resume	0001
Class II, Software Interrupts	1	CP Instruction Fault	0000
	2	I/O Instruction Fault	0001
	3	#F.P. Overflow/Underflow Interrupt	0010
	4	Executive Return Instruction	0011
	5	RTC Overflow	0100
	6	Monitor Clock	0101
	7	Write Protect (20A Only)	1100
Class III, IDC Interrupts	1	Intercomputer Time-Out	11
	2	External Interrupt or Discrete Interrupt *	00
	3	Output Chain Interrupt	10
	4	Input Chain Interrupt	01

* Serial MIL-STD-188C, VACALES, or EIA-STD-RS-232C Channels # Optional Math Pac function

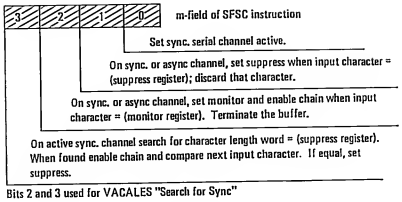
AN/UYK-20A ONLY①

$CM_2$13	CHANNEL NUMBER	PAGE SET
0	N/A	00
1	$0 - 7_8$	10
1	$10 - 17_8$	11

I/O CONTROL MEMORY



SFSC OPERATIONS



Bits 2 and 3 used for VACALES "Search for Sync"

SERIAL CHANNEL INTERRUPT WORD FORMAT

BITS	MIL-STO-188	RS-232	VACALES
0 - 7	ALWAYS ONES	ALWAYS ONES	ALWAYS ONES
8	1 ⇒ B OISCRETE TURNEO ON	1 ⇒ RING INOICATOR ON	1 ⇒ B OISCRETE TURNEO ON
9	1 ⇒ C OISCRETE TURNEO OFF	1 ⇒ RECEIVEO LINE SIGNAL DETECTOR OFF	1 ⇒ CARRIER OETECT TURNEO OFF
10	1 ⇒ I OISCRETE TURNED ON	1 ⇒ I OISCRETE TURNEO ON	1 ⇒ ALARM INDICATE TURNED ON
11	ALWAYS ONE	ALWAYS ONE	1 ⇒ SYNC ERROR TURNEO ON
12	ALWAYS ONE	ALWAYS ONE	1 ⇒ TRANSMIT FULL ON TURNEO OFF
13 - 15	ALWAYS ONES	ALWAYS ONES	ALWAYS ONES

SERIAL I/O DISCRETE FUNCTIONS

Octal m-Value	Function	MIL-STO-188C/VACALES			EIA-STO-RS232	
		Oiscrete	Line Oesignator (188C)	Line Oesignator (Vacales)	Oiscrete	Line Oesignator
0	Set	Loop test (internal)	–	–	Loop test (internal)	–
1	Clear	Loop test (internal)	–	–	Loop test (internal)	–
2	NoOp	Not used	–	–	Spare	–
3	NoOp	Not used	–	–	Spare	–
4	Set	Control Line 6	J	J	J (non-std.)	–
5	Clear	Control Line 6	J	J	J (non-std.)	–
6	Set	Control Line 5	H	TRAN. PREP	Oisable Ring Indicator Interrupt (internal)	–
7	Clear	Control Line 5	H	TRAN. PREP	Enable Ring Indicator Interrupt (internal)	–
10	Clear	Control Line 4	G	G	Request to Send	CA
11	Set	Control Line 4	G	G	Request to Send	CA
12	Clear	Control Line 3	F	F	New Sync	–
13	Set	Control Line 3	F	F	New Sync	–
14	Clear	Control Line 2	0	0	Oata Terminal Ready	CO
15	Set	Control Line 2	0	0	Oata Terminal Ready	CO
16	Clear	Control Line 1	A	LOOP BACK	Loop Test (external)	
17	Set	Control Line 1	A	LOOP BACK	Loop Test (external)	

SERIAL I/O STATUS INTERPRETATION

Word Bit #	MIL-STO-188 Function	EIA-STO-RS232 Function	VACALES FUNCTION
2^0	Parity Error	Parity Error	–
2^1	Overrun	Overrun	Overrun
2^2	Break	Break	Parity Error
2^3	E Active	Clear to Send	Sync Error

LIST OF NOMENCLATURED ITEMS

UNIT NAME	DESIGNATION	PART NUMBER
CABINET, ELECTRICAL EQUIPMENT [2]	CY-7445A/UYK-20(V)	90536-7101970-12
CABINET, ELECTRICAL EQUIPMENT [3]	CY-7446A/UYK-20X(V)	90536-7101970-13
CABINET, ELECTRICAL EQUIPMENT [1 3]	CY-7771/UYK-20X(V)	90536-7157853-09
CABINET, ELECTRICAL EQUIPMENT [2]	CY-7976/UYK-20A(V)	90536-7101970-14
CABINET, ELECTRICAL EQUIPMENT [3]	CY-7977/UYK-20AX(V)	90536-7101970-15
CONTROL-MONITOR [2]	C-9674A/UYK-20(V)	90536-7101985-10
CONTROL-MONITOR [3]	C-9675A/UYK-20X(V)	90536-7101985-09
CONTROL-MONITOR [1 3]	C-10633/UYK-20X(V)	90536-7157869-03
CONTROL-MONITOR [2]	C-9674A/UYK-20(V)	90536-7101985-08
POWER SUPPLY [2]	PP-7032(V)/UYK-20(V)	90536-7150350-02
POWER SUPPLY [2]	PP-7107(V)/UYK-20(V)	90536-7150355-02
POWER SUPPLY [2]	PP-7108(V)/UYK-20(V)	90536-7150351-03
POWER SUPPLY [3]	PP-7109(V)/UYK-20X(V)	90536-7150352-04
POWER SUPPLY [3]	PP-7110(V)/UYK-20X(V)	90536-7150354-04
POWER SUPPLY [3]	PP-7111(V)/UYK-20X(V)	90536-7150353-03
PROCESSOR-VERIFIER UNIT [2]	CP-1188B(V)/UYK-20(V)	90536-7128031-18
PROCESSOR-VERIFIER UNIT [3]	CP-1189B(V)/UYK-20X(V)	90536-7128031-19
PROCESSOR-VERIFIER UNIT [2]	CP-1512(P)/UYK-20A(V)	90536-7310550-00
PROCESSOR-VERIFIER UNIT [3]	CP-1513(P)/UYK-20AX(V)	90536-7310550-01
CORE MEMORY UNIT (8K)	MU-632/UYK-20(V)	90536-7128082-00
CORE MEMORY UNIT (32K)	MU-731/UYK-20A(V)	90536-7310022-18
CORE MEMORY-CONTROL UNIT [2]	C-9531A(V)/UYK-20(V)	90536-7128029-20
CORE MEMORY-CONTROL UNIT [3]	C-9670A(V)/UYK-20X(V)	90536-7128029-21
CORE MEMORY-CONTROL UNIT [2]	C-9531A(V)/UYK-20(V)	90536-7128029-22
CORE MEMORY-CONTROL UNIT [3]	C-9670A(V)/UYK-20X(V)	90536-7128029-23
CORE MEMORY-CONTROL UNIT [2]	C-11087(V)/UYK-20A(V)	90536-7310014-08
CORE MEMORY-CONTROL UNIT [3]	C-11088(V)/UYK-20AX(V)	90536-7310014-09
INTERFACE KIT, FAST, SERIAL	MK-1720/UYK-20(V)	90536-7101802-08
INTERFACE KIT, SERIAL COMMUNICATION ASYNC/SYNC MIL-188C	MK-2051/UYK-20(V)	90536-7313567-02
INTERFACE KIT, SERIAL COMMUNICATION ASYNC/SYNC RS232	MK-2048/UYK-20(V)	90536-7313568-02
INTERFACE KIT, SLOW	MK-2097/UYK-20(V)	90536-7132194-04
INTERFACE KIT, FAST, NEGATIVE	MK-2098/UYK-20(V)	90536-7132195-04
INTERFACE KIT, FAST, POSITIVE	MK-2099/UYK-20(V)	90536-7132196-0[illegible]
INTERFACE KIT, VARIABLE CHARACTER LENGTH, SERIAL (VACALES)	MK-1806/UYK-20(V)	90536-7132198-03
INTERFACE KIT, SLOW PIC, DUAL	MK-2100/UYK-20(V)	90536-7132197-02
INTERFACE KIT, LOW LEVEL SERIAL	MK-2130/UYK-20(V)	90536-7320276-03
MAINTENANCE KIT, ELECTRONIC EQUIPMENT	MK-1958/UYK-20(V)	90536-7128073-01
REGISTER, COMPUTER, DUAL	MU-634/UYK-20(V)	90536-7150465-01
MEMORY KIT, READ (AVAILABLE BOOTSTRAP LISTINGS)	MK-1901(V)/UYK-20(V)	90536-7136820-00
ADAPTER KIT, EXTERNAL MOUNTING	MK-1959/UYK-20(V)	90536-7157900-00
ADAPTER KIT, EXTERNAL MOUNTING	MK-1960/UYK-20(V)	90536-7157900-01
OSCILLATOR, REAL TIME CLOCK MONITOR	O-1781/UYK-20(V)	90536-7126200-02
OSCILLATOR, REAL TIME CLOCK MONITOR	O-1782/UYK-20(V)	90536-7137130-02
MOUNTING KIT, INTERNAL ADAPTER	MK-2308/UYK-20(V)	90536-7321442-00

[1]Langley Rack [2]400 Hz [3]60 Hz

NOTE: For Micro Memory Items, see page 12.

LIST OF AN/UYK-20(V) MICROMEMORY ITEMS

NAME	DESIGNATION	PART NUMBER
PROGRAM KIT, MICROMEMORY BASIC/ NO MATH PAC	MK-1723(V)/UYK-20(V)	90536-7128071-04
PROGRAM KIT, MICROMEMORY BASIC/ MATH PAC	MK-1723(V)/UYK-20(V)	90536-7128071-05
MICROMEMORY UNIT, GROWTH, PROGRAM ONE	MU-791/UYK-20(V)	90536-7136291-01
MICROMEMORY UNIT, GROWTH, PROGRAM TWO	MU-792/UYK-20(V)	90536-7136905-01
MICROMEMORY UNIT, GROWTH, PROGRAM THREE	MU-793/UYK-20(V)	90536-7137070-01
MICROMEMORY UNIT, GROWTH, PROGRAM FOUR	MU-794/UYK-20(V)	90536-7313052-01
MICROMEMORY UNIT, STANDARD	MU-799/UYK-20(V)	90536-7125133-01

LIST OF AN/UYK-20A(V) MICROMEMORY ITEMS

NAME	DESIGNATION	PART NUMBER
PROGRAM KIT, MICROMEMORY BASIC/ NO MATH PAC	MK-2134(V)/UYK-20A(V)	90536-7310548-00
PROGRAM KIT, MICROMEMORY BASIC/MATH PAC	MK-2134(V)/UYK-20A(V)	90536-7310548-01
MICROMEMORY UNIT, GROWTH, PROGRAM I	MU-795/UYK-20A(V)	90536-7310524-01
MICROMEMORY UNIT, GROWTH, PROGRAM II	MU-796/UYK-20A(V)	90536-7310526-01
MICROMEMORY UNIT, GROWTH, PROGRAM III	MU-797/UYK-20A(V)	90536-7310538-01
MICROMEMORY UNIT, GROWTH, PROGRAM IV	MU-798/UYK-20A(V)	90536-7315270-01
MICROMEMORY UNIT, STANDARD	MU-800/UYK-20A(V)	90536-7310522-01

CURRENT LINE REPLACEABLE ASSEMBLIES

CARD	NAME	NSNs	LOCATION
90536-7092187-01	MICRO P REGISTER + DISPLAY	7010-01 084-8743	A03,04,05
90536-7092195-01	CONDITION REGISTER	7010-00-522-3450	B08
90536-7092201-01	REPEAT CONTROL + DISPLAY	7010-01-084-8742	A06
90536-7125129-01	MICRO MEMORY 0000-1777	7010-01-127-1757	B05*
90536-7125136-01	MICRO MEMORY 6000-7777	7010-00-522-3702	B02
90536-7125237-02	EMULATE CONTROL 1 & 2	7010-01-100-3315	C17*
90536-7125241-01	INST REG 0-7	7010-01-076-0613	C13
90536-7125276-01	MULTIPLY, DIVIDE, & MICRO CONTROL	7010-01-100-3316	B07
90536-7125290-01	SOURCE & DESTINATION TRANSLATOR	7010-00-522-3719	B15
90536-7125307-01	I/O CONTROL MEMORY	7010-01-075-5597	A20,21,22,23
90536-7125311-01	P, BKPT, MEMORY ADDRESS REG	7010-00-397-7808	C07,08
90536-7125380-01	STATUS REG 1 & 2 BITS 8-15	7010-00-522-3732	C15
90536-7125406-01	PAGE REGISTERS & CONTROL	7010-01-100-3317	C09*
90536-7125417-01	ALU CONTROL II & CONSOLE CONTROL	7010-00-578-2413	B09
90536-7125500-01	SHIFT MATRIX	7010-00-522-3735	A09,10
90536-7125926-01	PWR INTERRUPT, MASTER CLEAR	7010-00-522-3751	C22*
90536-7125980-01	I/O MODE & MATH PAC SELECT	7010-01-017-8793	C23*
90536-7126125-01	TWO BIT MULTIPLY	7010-00-522-3759	A07,08
90536-7126130-01	SHIFT MATRIX INPUT REGS.	7010-00-522-3760	A12
90536-7126156-01	MEMORY INTERFACE	7010-01-100-3318	C05,06
90536-7126160-01	RTC & MON CLK CONT, RESUME, DUAL CH	7010-00-522-3955	A14
90536-7126167-01	JUMP INTERRUPTS & INPUT ADDR	7010-01-084-8773	C19*
90536-7126172-01	I/O TRANSLATOR	7010-01-084-8785	B21
90536-7126175-01	I/O PRIORITY	7010-00-522-3987	B20
90536-7126181-01	I/O CONTROL, I/O TIMING	7010-00-522-4004	B18
90536-7126200-02	20 MHz OSC 1 KHz CLOCK	7050-01-211-4670	B23
90536-7136266-01	ALU CONTROL	7010-01-100-3320	B10
90536-7136295-01	NDRO CONTROL PANEL INTERFACE	7010-01-006-6468	B06
90536-7136351-01	MICRO CONTROL 15	7010-01-100-3321	B17
90536-7150210-01	ARITHMETIC LOGIC UNIT	7010-01-140-7114	B11,12,13,14
90536-7150220-01	MEMORY CONTROL	7010-00-522-3749	C10*
90536-7150295-01	MASTER CLOCK, CONDITION REG	7010-00-522-3752	B16
90536-7150397-01	SHIFT MATRIX CONTROL	7010-01-053-4303	A13
90536-7150401-01	EMULATE CONTROL 3 & 4	7010-01-100-3323	C18
90536-7150405-01	TRANSLATOR CONTROL	7010-01-054-2891	B19
90536-7150415-01	STATUS REG 1 & 2 BITS 0-7	7010-01-050-1708	C16
90536-7150421-01	I/O INTERRUPT STORAGE	7010-01-100-3324	B22
90536-7150465-01	GENERAL REGISTERS (32)	5999-01-131-4654	C14
90536-7150475-01	I/O DATA DRIVE & MONITOR CLOCK	7010-01-100-3325	A19
90536-7150480-01	MICRO MEMORY SEL & MISC	7010-01-100-3326	A15

*SEE PAGE 15 FOR AN/UYK-20A.

CURRENT LINE REPLACEABLE ASSEMBLIES (continued)

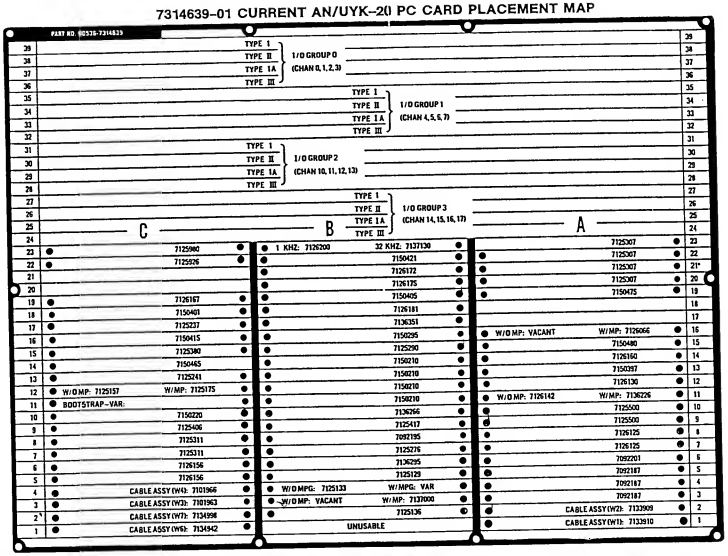
CARD	NAME	NSNs	LOCATION
	I/O Options		
90536-7119380-01	-3V FAST TYPE I	7010-00-522-3519	
90536-7132152-03	-3V FAST TYPE III	5998-01-126-7298	
90536-7132154-03	-3V FAST TYPE II	7010-00-522-3526	
90536-7119395-01	-15V SLOW TYPE I	7010-00-522-3529	
90536-7132150-03	-15V SLOW TYPE II	5999-01-262-3942	
90536-7132146-13	-15V SLOW TYPE III	5999-01-262-3941	
90536-7119410-01	+3.5V ANEW TYPE I	7010-00-522-3546	
90536-7132156-03	+3.5V ANEW TYPE III	7010-00-522-3554	
90536-7132158-03	+3.5V ANEW TYPE II	7010-01-168-8386	
90536-7119432-02	NTDS SERIAL 2 CHAN RCVR	7010-01-228-3269	
90536-7312344-08	NTDS SERIAL 2 CHAN DRVR	5999-01-252-1648	
90536-7132110-01	-15 VOLT SLOW PIC TYPE I	7010-01-037-9654	
90536-7132148-13	-15 VOLT SLOW PIC TYPE II	7010-01-171-4553	
90536-7132140-01	-15 VOLT SLOW PIC TYPE IA	7010-01-037-9655	
90536-7132121-03	VACALES TYPE III	7010-01-037-9658	
90536-7132126-01	VACALES TYPE IA	7010-01-150-4425	
90536-7132131-03	VACALES TYPE II	5998-01-150-4426	
90536-7132136-01	VACALES TYPE I	7010-01-037-9657	
90536-7312528-00	COMMON RS-232/188C RCVR	7010-01-166-3843	
90536-7312530-02	COMMON MIL-188C I/O DRVR	7010-01-222-2644	
90536-7312670-04	COMMON RS-232-C I/O DRVR	5999-01-263-5745	
90536-7316476-02	LOW LEVEL SERIAL TYPE I	7010-01-168-8576	
90536-7316478-07	LOW LEVEL SERIAL TYPE II	5999-01-294-2533	
	CP OPTIONS		
90536-7125175-01	INST REG 08-15, ECW w/MATH PAC	7010-00-522-3704	C12
90536-7126066-01	CORDIC EXTENSION w/MATH PAC	7010-01-017-8766	A16
90536-7136226-01	MULTIPLY CONTROL w/MATH PAC	7010-01-127-1758	A11
90536-7136291-01	MPG 1 MICROMEMORY 2000-3777	7010-01-084-8798	B04*
90536-7136905-01	MPG 2 MICROMEMORY 2000-3777	5998-01-179-0551	B04*
90536-7137000-01	MICROMEMORY 4000-5777 w/MATH PAC	7010-00-578-2303	B03
90536-7137070-01	MPG 3 MICROMEMORY 2000-3777	5999-01-178-8565	B04*
90536-7137130-02	20 MHz OSC, 32 KHz CLOCK	5998-01-104-7171	B23
90536-7313052-01	MPG 4 MICROMEMORY 2000-3777	5998-01-158-4757	B04*
90536-7125133-01	MICRO MEMORY 2000-3777 w/o MICRO GROWTH	7010-01-084-8787	B04*
90536-7125157-01	INST REG 08-15, ECW ROM w/o MATH PAC	7010-00-578-2302	C12
90536-7126142-01	MULTIPLY w/o MATH PAC	7010-01-127-1756	A11
	CP CABLE ASSY.		
90536-7101963-01	CABLE ASSY CP-TO MEM W3	7010-01-037-9651	C03
90536-7101966-01	CABLE ASSY CP-TO MEM W4	7010-01-037-9652	C04
90536-7133909-01	CABLE ASSY CP-MAINT PANEL W2	7010-00-604-9079	A02
90536-7133910-02	CABLE ASSY CP-MAINT PANEL W1	7010-00-604-8858	A01
90536-7134942-00	CABLE ASSY CP-MEM INT W6 DMA	7010-01-037-9653	C01
90536-7134998-00	CABLE ASSY CP-MEM INT W7 DMA	7010-01-026-8023	C02

*SEE PAGE 15 FOR AN/UYK-20A.

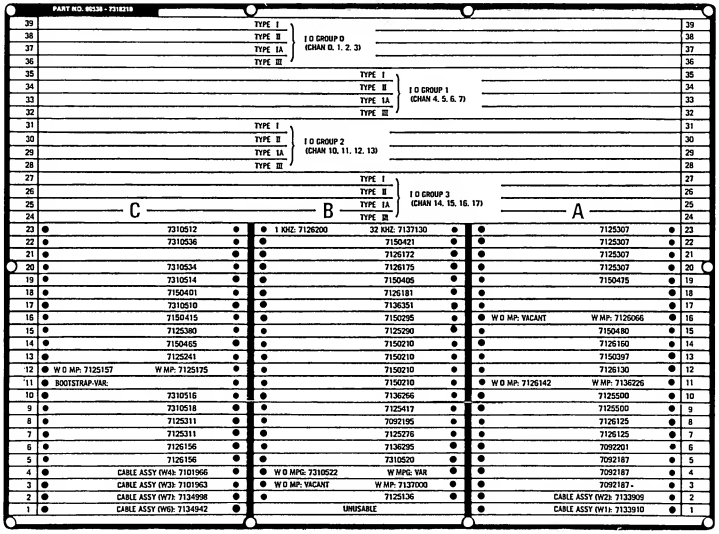
CURRENT LINE REPLACEABLE ASSEMBLIES (continued)

CARD	NAME	NSNs	LOCATION
	LANGLEY RACK CP CABLE ASSY		
90536-7101963-02	CABLE ASSY CP TO MEM W3	5995-01-101-5840	C03
90536-7101966-02	CABLE ASSY CP TO MEM W4	5995-01-101-5843	C04
90536-7133909-02	CABLE ASSY CP TO MAINT PNL W2	5995-01-099-2449	A02
90536-7133910-03	CABLE ASSY CP TO MAINT PNL W1	5995-01-101-5839	A01
90536-7134942-01	CABLE ASSY CP TO MEM W6 (DMA)	5995-01-062-6245	C01
90536-7134998-01	CABLE ASSY CP TO MEM W7 (DMA)	5995-01-062-6246	C02
	MEMORY		
90536-7128082-00	CORE ARRAY 8K	7010-01-016-0411	
90536-7150490-00	CONTROL w DMA	7010-00-525-1215	
90536-7134994-03	CONTROL w/o DMA	7010-01-084-8786	
90536-7150486-00	DATA w DMA	7010-01-066-7586	
90536-7101824-03	DATA w/o DMA	7010-01-084-8774	
	EXPANDED MEMORY CP CARDS		
90536-7310510-02	EMULATE CONTROL 1 & 2	7010-01-201-7389	C17
90536-7310512-01	I/O MODE & MATH PACK SEL	7010-01-201-7390	C23
90536-7310514-01	OC=40 JUMPS, INT'S, INPUT ADD REG	7010-01-201-7391	C19
90536-7310516-02	MEMORY CONTROL	5998-01-207-6600	C10
90536-7310518-01	PAGE REG'S & CONTROL	7010-01-201-7393	C09
90536-7310520-01	MICROMEMORY 0000-1777	7010-01-172-0807	B05
90536-7310522-01	MICROMEMORY 2000-3777	7010-01-181-3856	B04
90536-7310524-01	MPG 1 MICROMEMORY 2000-3777	7010-01-181-3857	B04
90536-7310526-01	MPG 2 MICROMEMORY 2000-3777	7010-01-172-9028	B04
90536-7310534-05	LOGIC CARD 1	5999-01-210-8963	C20
90536-7310536-03	POWER INT & MASTER CLEAR	7010-01-201-7395	C22
90536-7310538-01	MPG 3 MICROMEMORY 2000-3777	7010-01-172-5911	B04
90536-7315270-01	MPG 4 MICROMEMORY 2000-3777	7010-01-172-9029	B04
	EXPANDED MEMORY CARDS		
90536-7310022-18	CORE ARRAY 32K	7010-01-168-8593	
90536-7313550-13	DATA MOD	7010-01-167-2555	
90536-7312682-07	CONTROL CARD	7010-01-167-2554	
	FAN ASSEMBLIES		
90536-7309623-00	400 Hz STD CABINET	4140-01-181-8745	
90536-7309623-01	60 Hz STD CABINET	4140-01-130-0472	
90536-7310594-01	60 Hz CABINET (LANGLEY RACK)	7010-01-181-3307	
90536-7308013-00	400 Hz MEMORY	4140-01-008-2026	
90536-7308013-01	60 Hz MEMORY	4140-01-037-9620	
90536-7308028-00	400 Hz CP/IO	4140-01-034-7819	
90536-7308028-01	60 Hz CP/IO	4140-01-130-0471	
	POWER SUPPLIES		
90536-7150350-02	400 Hz, 115 VAC, 3Ø	7010-01-016-0413	
90536-7150351-03	400 Hz, 115 VAC, 1Ø	6130-01-130-8050	
90536-7150352-04	60 Hz, 115 VAC, 3Ø	7010-01-125-2309	
90536-7150353-03	60 Hz, 115 VAC, 1Ø	6130-01-129-5997	
90536-7150354-04	60 Hz, 208 VAC, 3Ø	7010-01-164-9955	
90536-7150355-02	400 Hz, 208 VAC, 3Ø	6130-01-130-8051	

7314639-01 CURRENT AN/UYK-20 PC CARD PLACEMENT MAP



7318218-00 CURRENT AN/UYK-20A CARD PLACEMENT MAP



7314638–01 CURRENT INPUT/OUTPUT PC CARD ASSEMBLIES

INTERFACE OPTIONS (4 CARD GROUPS)		FEATURE KIT NO	TYPE I	TYPE II	TYPE 1A	TYPE III
NTOS 15V SLOW	MK 2097/UYK 20 (V)	7132194*	7119395	7132150	7119395	7132146
	MK 1693 UYK 20 (V)	7101805	7119395	7119405	7119395	7119401
NTOS 3V FAST	MK 2098/UYK 20 (V)	7132195*	7119380	7132154	7119380	7132152
	MK 1694 UYK 20 (V)	7101806	7119380	7119390	7119380	7119385
NTOS +3.5V ANEW	MK 2099/UYK 20 (V)	7132196*	7119410	7132158	7119410	7132156
	MK 1695 UYK 20 (V)	7101807	7119410	7119420	7119410	7119415
PIC NTOS 15V SLOW	MK 2100/UYK 20 (V)	7132197*	7132110	7132148	7132140	7132146
	MK 1807 UYK 20 (V)	7132199	7132110	7132115	7132140	7119401
VACALES	MK 1806/UYK 20 (V)	7132198	7132136	7132131	7132126	7132121

* RECOMMENDED KIT: CARDS ARE INTERCHANGEABLE WITHIN FEATURE KIT AND TYPE. EXAMPLE: 7132150 IS INTERCHANGEABLE WITH 7119405.
▲ RECOMMENDED KIT: SEE TECHNICAL MANUAL FOR INTERCHANGEABILITY.

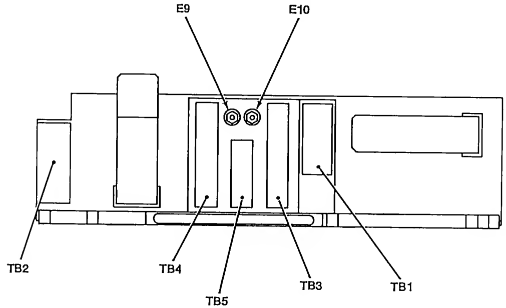
JUMPER SELECTION TABLE FOR COMMON MIL 188C RS 232C SERIAL I/O

CARD TYPE	CARD NO	FUNCTION SELECT	JUMPER MODE	JUMPER J3 (TB1)	JUMPER MODE	JUMPER J3 (TB1)
MIL 188C RS 232C TYPE I	7312528	SYNC ASYNC ODD CHAN	SYNC (SO)	PINS 14 & 15	ASYNC (AO)	PINS 13 & 14
		SYNC ASYNC EVEN CHAN	SYNC (SE)	PINS 11 & 12	ASYNC (AE)	PINS 10 & 11
		MIL 188C RS 232C	RS 232C (RS)	PINS 8 & 9	MIL 188C (ML)	PINS 7 & 8
		0 1 FILL	1 FILL (1F)	PINS 5 & 6	0 FILL (0F)	PINS 4 & 5
		SPARE PIN LOCATIONS	(SP)	PINS 1 & 2	(SP)	PINS 1 & 2
MIL 188C TYPE II	7312530	SYNC ASYNC EVEN CHAN	ASYNC (AE)	PINS 11 & 12	SYNC (SE)	PINS 10 & 11
		SYNC ASYNC ODD CHAN	ASYNC (AO)	PINS 8 & 9	SYNC (SO)	PINS 7 & 8
		SPARE PIN LOCATIONS	(SP)	PINS 1 THRU 6	(SP)	PINS 1 THRU 6
RS 232C TYPE II	7312670	FUNCTION SELECT	MODE	J4 (TB2)	MODE	J4 (TB2)
		BAUD RATE	75 BPS (75) 150 BPS (15) 300 BPS (3) 600 BPS (6)	PINS 15 & 16 PINS 13 & 14 PINS 11 & 12 PINS 9 & 10	1200 BPS (12) 2400 BPS (24) 4800 BPS (48) 9600 BPS (96)	PINS 7 & 8 PINS 5 & 6 PINS 3 & 4 PINS 1 & 2

INTERFACE OPTIONS (2 CARD GROUPS)	FEATURE KIT NO	TYPE I OR 1A	TYPE II OR III
NTOS SERIAL MK 1720 UYK 20 (V)	7101802▲	7119432	7312344
		7119431	7150326
COMMON MIL 188C MK 2051 UYK 20 (V)	7313567▲	7312528 SEE TABLE	7312530 SEE TABLE
MIL 188C SYNC MK 1719 UYK 20 (V)	7101803	7119437	7119441
MIL 188C ASYNC MK 1721 UYK 20 (V) 75 150 300 600 BPS 75 150 300 1200 BPS 75 150 300 2400 BPS 75 150 600 1200 BPS 75 150 600 2400 BPS 75 150 1200 2400 BPS 75 300 500 1200 BPS 75 300 600 2400 BPS 75 300 1200 2400 BPS 150 300 600 1200 BPS 150 300 600 2400 BPS 300 600 1200 2400 BPS 75 600 1200 2400 BPS 150 600 1200 2400 BPS 150 300 1200 2400 BPS	7128068	7133227	 7133231 7133235 7133240 7133245 7133250 7133255 7133260 7133265 7133271 7133275 7133280 7133285 7133291 7133295 7133300
COMMON RS 232C MK 2048 UYK 20 (V)	7313568▲	7312528 SEE TABLE	7312670 SEE TABLE
RS 232C SYNC MK 1718 UYK 20 (V)	7128069	7119446	7119450
RS 232C ASYNC MK 1722 UYK 20 (V) 75 150 300 600 BPS 75 150 300 1200 BPS 75 150 300 2400 BPS 75 150 600 1200 BPS 75 150 600 2400 BPS 75 150 1200 2400 BPS 75 300 600 1200 BPS 75 300 600 2400 BPS 75 300 1200 2400 BPS 150 300 600 1200 BPS 150 300 600 2400 BPS 300 600 1200 2400 BPS 75 600 1200 2400 BPS 150 600 1200 2400 BPS 150 300 1200 2400 BPS	7128070	7133306	 7133310 7133315 7133320 7133325 7133330 7133335 7133340 7133345 7133350 7133355 7133360 7133365 7133370 7132100 7132105
LOW LEVEL SERIAL MK 2130 UYK 20 (V)	7320276	7316476	7316478

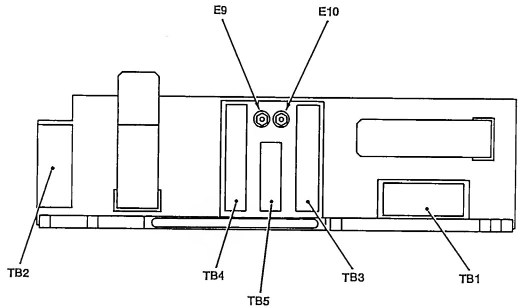
PART NO. 90536-7314638-01

POWER SUPPLY DATA



FRONT

POWER SUPPLY CHASSIS FOR:
PP-7109(V)/UYK-20X(V) (60 HZ 115 VAC 3Ø) 90536-7150352-04, NSN 7010-01-125-2309
PP-7110(V)/UYK-20X(V) (60 HZ 208 VAC 3Ø) 90536-7150354-04, NSN 7010-01-164-9955



FRONT

POWER SUPPLY CHASSIS FOR:
PP-7032(V)/UYK-20(V) (400 HZ 115 VAC 3Ø) 90536-7150350-02, NSN 7010-01-016-0413
PP-7107(V)/UYK-20(V) (400 HZ 208 VAC 3Ø) 90536-7150355-02, NSN 6130-01-130-8051
PP-7108(V)/UYK-20(V) (400 HZ 115 VAC 1Ø) 90536-7150351-03, NSN 6130-01-130-8050
PP-7111(V)/UYK-20X(V) (60 HZ 115 VAC 1Ø) 90536-7150353-03, NSN 6130-01-129-5997

LOGIC VOLTAGES

OUTPUT POWER	VOLTAGE LIMITS (VDC) MIN.	VOLTAGE LIMITS (VDC) MAX.	LOAD CURRENT (AMPERES) MIN.	LOAD CURRENT (AMPERES) MAX.	TESTPOINT
+5 VDC (CP/IOC)	4.8	5.4	30	42	PS1-E9
+5 VDC (MEMORY)	4.75	5.5	6	16	PS1-TB4-6
+15 VDC*	14.1	16.4	1	12	PS1-TB4-2
-5.2 VDC	-4.9	-5.6	2	10	PS1-TB3-1
+12 VDC	11.2	12.6	0	1	PS1-TB3-3
-16 VDC	-15	-16.8	0	3	PS1-TB3-5

Check all voltages between TP listed and E10.

*The +15 volt regulator is temperature compensating and the +15 volt output will vary linearly with temperature from approximately 14.1 V at 60°C to 16.4 V at 0°C (for UYK-20A the range is 16.1 V at 60°C to 16.7 V at 0°C). Check all voltages between TP listed and E10.

AC AND DC TEST PROCEDURES

WARNING

FAILURE TO disconnect power cable at J35 results in dangerous voltages within the cabinet.

1. Ensure DPS main power cable is disconnected at J35.
2. Ensure all logic modules and 64K memory are installed.
3. Set Control Panel switches to the following positions:

POWER BLOWER	ON/OFF	to	ON
POWER LOGIC	ON/OFF	to	ON
CIRCUIT BREAKER	ON/OFF	to	ON
BATTLE SHORT	ON/OFF	to	ON

4. Using a VOM, observe reading as specified in the following table. Record all reading for future reference.

5. Using a VOM, measure from each power supply output voltage terminal to all other output voltage terminals. Observe the following:
   a) TB3-1 to TB4-4 is less than 1 ohm.
   b) All other readings are greater than 4 ohms.

AC-DC RESISTANCE VALUES

TERMINALS		115 V *10*		115 V *30*		208 V *30*	
FROM	TO	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz
J35-A	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-B	GND STUD	> 20k	> 20k	> 20k	> 20K	> 20k	> 20k
J35-C	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-D	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-G	GND STUD	< 1	< 1	< 1	< 1	< 1	< 1
J35-A	J35-B	> 30	> 15	> 100	> 30	> 200	> 90
J35-A	J35-C	> 30	> 20k	> 50	> 20	> 200	> 100
J35-A	J35-D	> 20k	> 20k	> 20k	> 20k	> 100	> 50
J35-B	J35-C	< 1	> 20k	> 150	> 60	> 200	> 90
J35-B	J35-D	> 20k	> 20k	> 20k	> 20k	> 80	> 30
J35-C	J35-D	> 20k	< 1	> 20k	> 20k	> 100	> 50
P.S. TB4-6	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-4	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-3	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-2	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. E09	P.S. E10	> 1	> 1	> 1	> 1	> 1	> 1
P.S. TB3-1	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB3-3	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB3-5	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB5-2	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-5	P.S. E10	< 1	< 1	< 1	< 1	< 1	< 1
P.S. TB4-7	P.S. E10	< 1	< 1	< 1	< 1	< 1	< 1
P.S. TB5-3	P.S. E10	< 1	< 1	< 1	< 1	< 1	< 1
CPU TB1-6	MEM TB1-3	< 1	< 1	< 1	< 1	< 1	< 1
CPU TB1-7	MEM TB1-4	< 1	< 1	< 1	< 1	< 1	< 1
CPU TB1-6	P.S. TB2-2	< 1	< 1	< 1	< 1	< 1	< 1
CPU TB1-7	P.S. TB2-1	< 1	< 1	< 1	< 1	< 1	< 1

I/O CONNECTOR PANEL

INPUT/OUTPUT CONNECTOR MATING KITS
J01 THRU J32

90536-7101943-02 (INPUT), NSN 5935-01-023-1213
-03 (OUTPUT), NSN 5935-01-023-1214
} PARALLEL 2U45 CABLE

90536-7101943-12 (INPUT), NSN 5935-01-108-3946
-13 (OUTPUT), NSN 5935-01-108-3945
} PARALLEL 2U19 CABLE

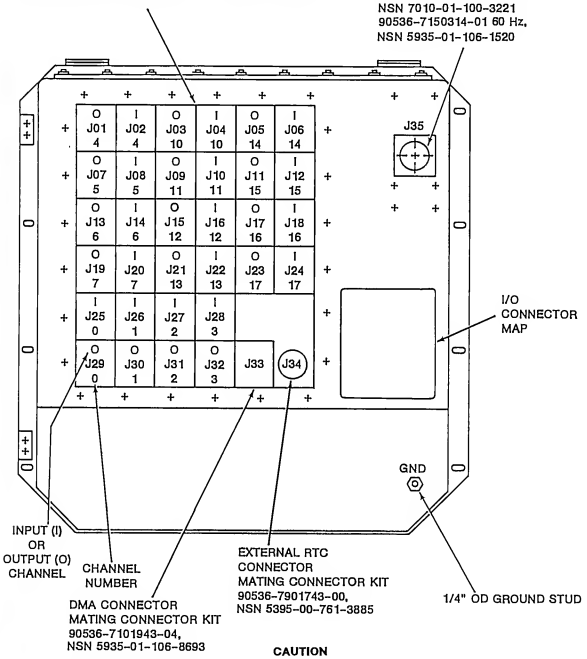
The 05 kit is used for the 188C and VACALES serial I/O. The 06 kit is used for the RS232 serial I/O.

90536-7101943-17 INPUT
-18 OUTPUT
} PARALLEL 2U-30 CABLE

90536-7316994-00 ADAPTER
90536-7150267-00 MATING KIT
} INPUT PARALLEL OR COMMON SERIAL

90536-7316994-01 ADAPTER
90536-7150267-01 MATING KIT
} OUTPUT PARALLEL OR COMMON SERIAL

INPUT POWER CONNECTOR MATING CONNECTOR KITS
90536-7150314-00 400 Hz, NSN 7010-01-100-3221
90536-7150314-01 60 Hz, NSN 5935-01-106-1520



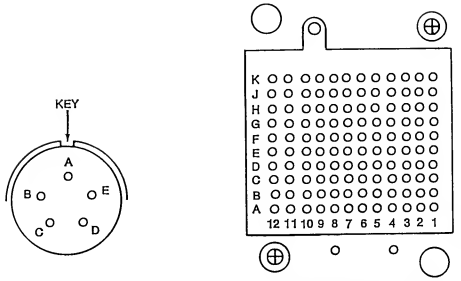
CAUTION

CONNECTOR CAPS WITH GASKETS MUST BE INSTALLED ON UNUSED CONNECTORS TO MAINTAIN RFI/EMI INTEGRITY.

I/O CONNECTOR GASKET - P/N 90536-7101924-00, NSN 5999-01-160-7904
CONNECTOR CAP KIT P/N 90536-7150304-00, NSN 7010-01-100-3220
RTC CAP P/N 90536-7908845-00, NSN 0099-LL-MC2-2617

CABINET CONNECTORS (J1 THRU J33) ARE ASSEMBLED WITH INDIVIDUALLY REPLACEABLE PINS AND BUSHINGS THAT ARE FIELD REPAIRABLE. SEE TECHNICAL MANUAL FOR PROCEDURE.
PIN/BUSHING P/N IS 90536 - 7902636-01. NSN 5940-00-516-1702
PIN P/N IS 90536-7076100-02 NSN 5999-00-005-3847
BUSHING P/N IS 90536-7050017-00 NSN 5999-00-003-8209

RTC AND I/O CONNECTOR PIN LOCATION



A. EXTERNAL RTC MATING CONNECTOR PIN LOCATION (J34)

B. I/O CONNECTOR PIN LOCATION (J01–J33)

EXTERNAL REAL–TIME CLOCK CONNECTOR (J34) PIN ASSIGNMENTS

(MATING CONNECTOR KIT 90536–7901743–00), NSN 5935–00–761–3885
(RECOMMENDED CABLE 90536–7128045–00)
(RFI/EMI RTC PROTECTIVE CAP: 90536–7908845–00)

FUNCTION	CONNECTOR PIN
SPARE	A
SPARE	B
CLOCK SIGNAL RETURN	C
CLOCK SIGNAL	D
SPARE	E
SPARE	F

SERIAL CONNECTOR PIN ASSIGNMENTS

NTDS SERIAL TYPE D CONNECTOR KITS
(WITHOUT MATING CONNECTORS)

RG11; INPUT 90536–7150391–00, NSN 5395–01–161–2976,
OUTPUT 90536–7150391–01, NSN 5395–01–161–2977
RG12; INPUT 90536–7150391–02, NSN 5395–01–161–2978,
OUTPUT 90536–7150391–03, NSN 5395–01–161–2979

NATO SERIAL TYPE E LOW LEVEL CONNECTOR KITS
(WITHOUT MATING CONNECTORS)

TRF8; INPUT 90536–7320185–00, OUTPUT 90536–7320185–01
TRF58; INPUT 90536–7320185–00, OUTPUT 90536–7320185–01

SIGNAL	RETURN
B O8	A O8

MIL–STD–188C, VACALES, AND RS–232C SERIAL CHANNEL I/O CONNECTOR PIN ASSIGNMENTS

MATING CONNECTOR KITS 90536–7101943–05, NSN 5935–01–090–4460, MIL–STD–188 AND VACALES, AND 90536–7101943–06, NSN 5935–01–171–3650, RS–232

NOTE: SERIAL I/O JUMPER PLUG 90536–7150233–00, NSN 5935–01–089–5459 REQUIRED FOR END–AROUND TESTING

FUNCTION			CONNECTOR PIN	
MIL–STD–188C	RS–232C	VACALES	GROUP A*	GROUP B**
A	LOOP TEST	LOOP BACK	D–8	G–4
B	RING INDICATOR	B	D–4	D–12
C	RECEIVED LINE SIGNAL DETECTOR	CARRIER DETECT	C–4	C–12
D	DATA TERMINAL READY	D	C–8	H–4
E	CLEAR TO SEND	SYNC ERROR	D–5	G–1
F	NEW SYNC.	F	D–7	G–3
G	REQUEST TO SEND	G	C–7	H–3
H	–	TRANSMITTER PREP	D–6	G–2
I	I (NOT USED)	ALARM INDICATE	D–3	D–11
J	J (NOT USED)	J	C–6	H–2
K	DATA SET READY	RECEIVER FULL ON	C–3	C–11
L	TRANSMITTER ON FULL (NOT USED)	TRANSMITTER FULL ON	D–2	D–10
TRANSMIT CLOCK	TRANSMITTER SIGNAL ELEMENT TIMING	TRANSMIT CLOCK	B–5	
TRANSMIT DATA	TRANSMITTED DATA	TRANSMIT DATA	A–5	
RECEIVE CLOCK	RECEIVER SIGNAL ELEMENT TIMING	RECEIVE CLOCK	A–7	
RECEIVE DATA	RECEIVE DATA	RECEIVE DATA	B–7	
SIGNAL GROUND	SIGNAL GROUND	SIGNAL GROUND	A–6	

NOTE: REMAINING PINS NOT USED. GROUP A OR B PINS MAY BE CONNECTED INTERNAL TO THE CABLE CONNECTOR TO ALLOW ITS USE ON EITHER A OR B GROUPS. FUNCTION TO PIN RELATIONSHIP REMAINS THE SAME FOR COMMON SERIAL I/O.

* GROUP A: CHANNELS 0,1; 4,5; 10,11; AND 14,15 (OCTAL)
** GROUP B: CHANNELS 2,3; 6,7; 12,13; and 16,17 (OCTAL)

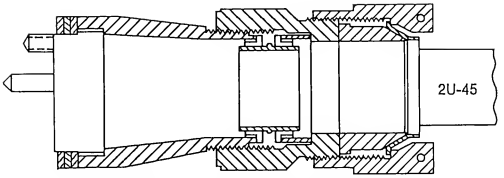
DIRECT MEMORY ACCESS CONNECTOR (J33) PIN ASSIGNMENTS

MATING CONNECTOR KIT 90536–7101943–04, NSN 5935–01–160–8693

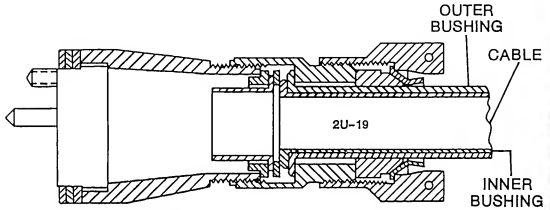
	CONNECTOR PIN			CONNECTOR PIN	
FUNCTION	SIGNAL	RETURN	FUNCTION	SIGNAL	RETURN
READ INITIATE	K–8	K–7	DATA BIT 00	K–2	K–1
WRITE INITIATE	J–8	J–7	DATA BIT 01	J–2	J–1
FULL CYCLE	H–8	H–7	DATA BIT 02	H–2	H–1
DATA AVAILABLE	G–8	G–7	DATA BIT 03	G–2	G–1
			DATA BIT 04	F–2	F–1
ADDRESS BIT 00	F–8	F–7	DATA BIT 05	E–2	E–1
ADDRESS BIT 01	E–8	E–7	DATA BIT 06	D–2	D–1
ADDRESS BIT 02	D–8	D–7	DATA BIT 07	C–2	C–1
ADDRESS BIT 03	C–8	C–7	*ADDR BIT 16	B–5	B–4
ADDRESS BIT 04	B–8	B–7	ZWL	A–2	A–1
ADDRESS BIT 05	A–8	A–7		C–12	C–11
ADDRESS BIT 06	K–11	K–10	DATA BIT 08	K–5	K–4
ADDRESS BIT 07	J–11	J–10	DATA BIT 09	J–5	J–4
ADDRESS BIT 08	H–11	H–10	DATA BIT 10	H–5	H–4
ADDRESS BIT 09	G–11	G–10	DATA BIT 11	G–5	G–4
ADDRESS BIT 10	F–11	F–10	DATA BIT 12	F–5	F–4
ADDRESS BIT 11	E–11	E–10	DATA BIT 13	E–5	E–4
ADDRESS BIT 12	D–11	D–10	DATA BIT 14	D–5	D–4
ADDRESS BIT 13	C–11	C–10	DATA BIT 15	C–5	C–4
ADDRESS BIT 14	B–11	B–10	*ADDR BIT 17	B–2	B–1
ADDRESS BIT 15	A–11	A–10	ZWU	A–5	A–4

Note: Remaining pins not used.

*AN/UYK–20A only



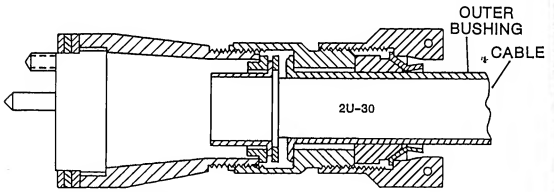
90536-7101943-02 (INPUT) NSN 5935-01-023-1213
90536-7101943-03 (OUTPUT) NSN 5935-01-023-1214
CONNECTOR STANDARD PARALLEL



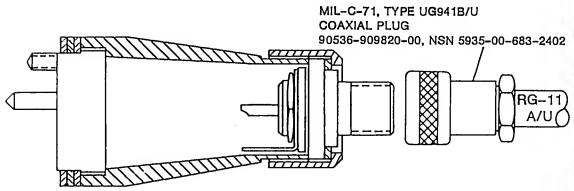
90536-7101943*-12 (INPUT) NSN 5935-01-108-3946
90536-7101943*-13 (OUTPUT) NSN 5935-01-108-3945
CONNECTOR STANDARD PARALLEL

*SAME KIT IS USED FOR 8-BIT PARALLEL
USING 2U-19 CABLE AND BOTH BUSHINGS

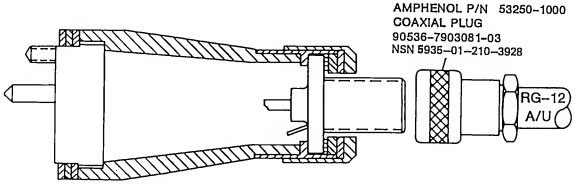
THE MIL-STD-188C AND VACALES CONNECTOR KIT 90536-7101943-05, NSN 5935-01-090-4460
AND RS-232C CONNECTOR KIT 90536-7101943-06, NSN 5935-01-171-3650
ARE SIMILAR TO THE PARALLEL 2U-19 KITS AND CAN BE USED WITH ANY MULTIWIRE CABLE.



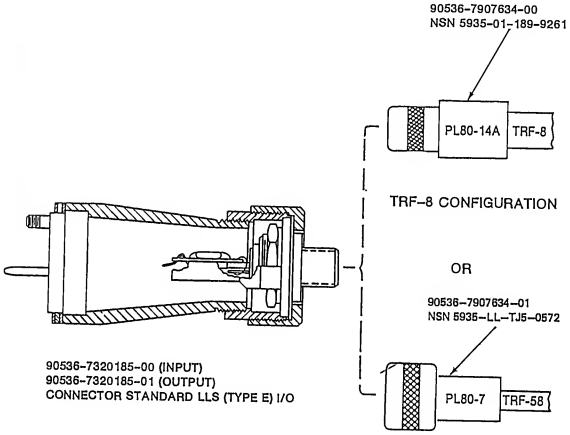
90536-7101943-17 (INPUT)
90536-7101943-18 (OUTPUT)
CONNECTOR STANDARD PARALLEL



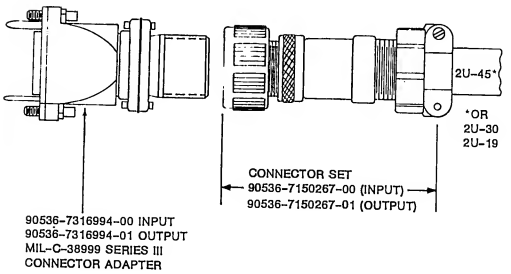
90536-7150391-00 (INPUT) NSN 5935-01-161-2976
90536-7150391-01 (OUTPUT) NSN 5935-01-161-2977
CONNECTOR STANDARD NTDS SERIAL (TYPE D) RG-11 CONFIGURATION



90536-7150391-02 (INPUT) NSN 5935-01-161-2978
90536-7150391-03 (OUTPUT) NSN 5935-01-161-2979
CONNECTOR STANDARD NTDS SERIAL (TYPE D) RG-12 CONFIGURATION



90536-7320185-00 (INPUT)
90536-7320185-01 (OUTPUT)
CONNECTOR STANDARD LLS (TYPE E) I/O



90536-7316994-00 INPUT
90536-7316994-01 OUTPUT
MIL-C-38999 SERIES III
CONNECTOR ADAPTER

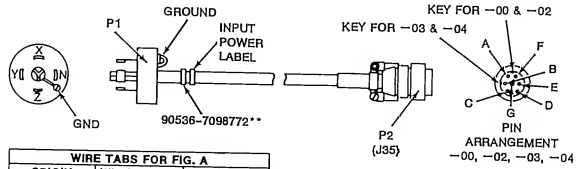
I/O CONNECTOR TYPE PIN TO PIN CROSS REFERENCE DATA

INPUT	MIL-C-38999 79 PIN	120 PIN	90 PIN	85 PIN	OUTPUT
IDR	79-78	B5-A5	1-11	1-6	ODA
IDA	77-76	B6-A6	2-12	2-7	ODR
EIR	75-74	B7-A7	3-13	3-8	EFA
EIA	73-72	B8-A8	4-14	4-9	EFR
DATA BIT 0	71-70	D1-C1	9-19	13-21	DATA BIT 0
DATA BIT 1	69-68	D2-C2	10-20	14-22	DATA BIT 1
DATA BIT 2	67-66	D3-C3	22-33	15-23	DATA BIT 2
DATA BIT 3	65-64	D4-C4	23-34	16-24	DATA BIT 3
DATA BIT 4	63-62	D5-C5	24-35	17-25	DATA BIT 4
DATA BIT 5	61-60	D6-C6	25-36	18-26	DATA BIT 5
DATA BIT 6	59-58	D7-C7	26-37	29-39	DATA BIT 6
DATA BIT 7	57-56	D8-C8	27-38	30-40	DATA BIT 7
DATA BIT 8	55-54	D9-C9	28-39	31-41	DATA BIT 8
DATA BIT 9	53-52	D10-C10	29-40	32-42	DATA BIT 9
DATA BIT 10	51-50	D11-C11	30-41	33-43	DATA BIT 10
DATA BIT 11	49-48	D12-C12	31-42	34-44	DATA BIT 11
DATA BIT 12	47-46	G1-H1	32-43	35-45	DATA BIT 12
DATA BIT 13	45-44	G2-H2	47-58	36-46	DATA BIT 13
DATA BIT 14	43-42	G3-H3	48-59	37-47	DATA BIT 14
DATA BIT 15	41-40	G4-H4	49-60	49-58	DATA BIT 15
DATA BIT 16	39-38	G5-H5	50-61	50-59	DATA BIT 16
DATA BIT 17	37-36	G6-H6	51-62	51-60	DATA BIT 17
DATA BIT 18	35-34	G7-H7	52-63	52-61	DATA BIT 18
DATA BIT 19	33-32	G8-H8	53-64	53-62	DATA BIT 19
DATA BIT 20	31-30	G9-H9	54-65	54-63	DATA BIT 20
DATA BIT 21	29-28	G10-H10	55-66	55-64	DATA BIT 21
DATA BIT 22	27-26	G11-H11	56-67	56-65	DATA BIT 22
DATA BIT 23	25-24	G12-H12	57-68	57-66	DATA BIT 23
DATA BIT 24	23-22	J1-K1	70-80	67-75	DATA BIT 24
DATA BIT 25	21-20	J2-K2	71-81	68-76	DATA BIT 25
DATA BIT 26	19-18	J3-K3	72-82	69-77	DATA BIT 26
DATA BIT 27	17-16	J4-K4	73-83	70-78	DATA BIT 27
DATA BIT 28	15-14	J5-K5	74-84	71-79	DATA BIT 28
DATA BIT 29	13-12	J6-K6	75-85	72-80	DATA BIT 29
DATA BIT 30	11-10	J7-K7	76-86	73-81	DATA BIT 30
DATA BIT 31	9-8	J8-K8	77-87	5-12	DATA BIT 31
DATA BIT 32		J9-K9	5-15	10-11	DATA BIT 32
DATA BIT 33		J10-K10	6-16	82-83	DATA BIT 33
DATA BIT 34		J11-K11	7-17	19-27	DATA BIT 34
DATA BIT 35		J12-K12	8-18	84-85	DATA BIT 35
SPARE	5-6	B2-A2	21-46	28-20	SPARE
SPARE	3-4	B3-A3	44-79	38-48	SPARE
SPARE	1-2	B4-A4			SPARE
SPARE		B9-A9			SPARE
SPARE		B10-A10			SPARE
SHIELD	7	B1	45-69	74	SHIELD

NOTE: FOR ARMORED CABLE THE SHIELD IS TO BE CONNECTED TO THE APPROPRIATE PIN IN THE CONNECTOR BLOCK.

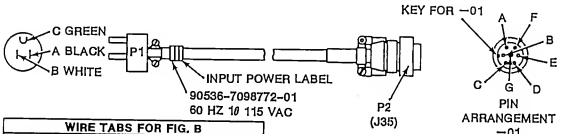
IN COLUMNS LISTING PIN NUMBERS THE FIRST PIN LISTED CARRIES THE ACTIVE SIGNAL AND THE SECOND THE RETURN.

POWER CONNECTOR DATA

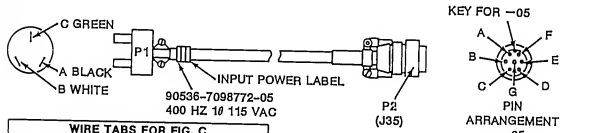


WIRE TABS FOR FIG. A		
ORIGIN	WIRE COLOR	DESTINATION
P1-X	BLACK	P2-A
P1-Y	RED	P2-B
P1-Z	ORANGE	P2-C
P1-N	WHITE	P2-D
P1-GND	GREEN	P2-G

−00 400 HZ 3Ø 115 VAC
−02 400 HZ 3Ø 208 VAC
−03 60 HZ 3Ø 115 VAC
−04 60 HZ 3Ø 208 VAC



WIRE TABS FOR FIG. B		
ORIGIN	WIRE COLOR	DESTINATION
P1-A	BLACK	P2-A
P1-B	WHITE	P2-B
P1-C	GREEN	P2-G



WIRE TABS FOR FIG. C		
ORIGIN	WIRE COLOR	DESTINATION
P1-A	BLACK	P2-A
P1-B	WHITE	P2-B
P1-C	GREEN	P2-G

MATING CONNECTOR KITS: POWER CONNECTOR (J35) PIN ASSIGNMENTS:
90536-7150314-00, 400 Hz; MS 3106R20-15S,
NSN 7010-01-100-3221
90536-7150314-01, 60 Hz; MS 3106R20-15SZ,
NSN 5935-01-106-1520

PIN NO.	1 Ø	3 ØY (208V)	3 ØΔ
A	115 VAC	115 VAC LINE TO NEUTRAL (Ø A)	115 VAC LINE TO LINE (Ø A)
B	NEUTRAL (COMMON)	115 NEUTRAL LINE TO NEUTRAL (Ø B)	115 VAC LINE TO LINE (Ø B)
C	NOT USED	115 VAC LINE TO NEUTRAL (Ø C)	115 VAC LINE TO LINE (Ø C)
D	NOT USED	NEUTRAL (COMMON)	NOT USED
E	NOT USED	NOT USED	NOT USED
F	NOT USED	NOT USED	NOT USED
G	SAFETY GROUND	SAFETY GROUND	SAFETY GROUND

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS

This list contains the available NDRO Program Kit configurations. These bootstraps were developed for AN/UYK-20 users and are under AN/UYK-20 Baseline Control. Other bootstraps developed by Unisys for non-military use are listed under Unisys engineering drawing 7137880. A bootstrap list cross referenced by device is available from A. L. Edwins (612) 456-7411 or write to:

Unisys Corporation
Defense Products
P.O. Box 64525
St. Paul Mn. 55164-0525
Attn: A. L. Edwins Software Products
M.S. Y42B1.

BOOTSTRAPS DEVELOPED FOR AN/UYK-20(V) AND AN/UYK-20A(V) COMPUTERS

PART NUMBER	BOOT NAME DEVICE-1 NAME DEVICE-2 NAME	OCTAL CHAN NO	BOOT STRAP SWITCH	PX10563 SEC. NO.
90536-7125150	EWDR			3-1
	PERTEC MTU 556 BPI	CHAN 07	1	
	REMEX 6375 PAPER TAPE	CHAN 04	2	
90536-7136150	CVTSC			3-2
	UNIVAC 1840M MTU	CHAN 01	1	
	INTERCOMPUTER	CHAN 00-04	2	
90536-7136155	SYS-1			3-3
	UNIVAC 1540 MTU	CHAN 17	1	
	UNIVAC 1532 PAPER TAPE	CHAN 16	2	
90536-7136160	IOIC			3-4
	UNIVAC 1540 MTU	CHAN 00	1	
	INTERCOMPUTER	CHAN 03-07	2	
90536-7136165	ESMDE			3-5
	UNIVAC 1540 MTU	CHAN 01	1	
	UNIVAC 1532 PAPER TAPE	CHAN 00	2	
90536-7136170	STANDARD			3-6
	UNIVAC 1540 MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 01	2	
90536-7136186	SSIXS(A)			3-7
	CIPHER MARK I MTU	CHAN 15	1	
	SYSTEM INDUST. 3500-33 DISK	CHAN 17	2	
90536-7136190	SSIXS(B)			3-8
	CIPHER DATA PRO. C-200 CASS.	CHAN 00	1	
	REMEX 6375 PAPER TAPE	CHAN 01	2	
90536-7136195	OW-75(A)			3-19
	UNIVAC 1840M MTU	CHAN 03	1	
	UNIVAC 1538 PAPER TAPE	CHAN 02	2	
90536-7136205	SAMAC			3-11
	KENNEDY 9000 MTU	CHAN 11	1	
	EECO PAPER TAPE	CHAN 07	2	
90536-7136210	SSQ-72			3-12
	DIGITRONICS 2540 PTR	CHAN 10	1-2	
90536-7136216	TPN22			3-27
	KENNEDY 9000 MTU	CHAN 03	1-2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136220	CFP			3-14
	UNIVAC 1532 PAPER TAPE	CHAN 10	1-2	
90536-7136230	GARD			3-15
	N.A.F.I PAPER TAPE	CHAN 10	1	
	TT-187,5-LEVEL PTPRDR	CHAN 07	2	
90536-7136235	ADSCS			3-30
	OJ-172 DEAC MTU	CHAN 10	1	
	KENNEDY 9000 MTU	CHAN 11	2	
90536-7136245	SSS(A)			3-18
	UNIVAC 1840M MTU	CHAN 16	1	
	UNIVAC 1532 PAPER TAPE	CHAN 04	2	
90536-7136250	SSS(B)			3-32
	KENNEDY 9000 MTU	CHAN 14	1	
	UNIVAC 1004 CARD RDR	CHAN 15	2	
90536-7136256	MK-48			3-35
	UNIVAC 1544 MTU	CHAN 11-15	1	
	601 CARD READER	CHAN 06	2	
90536-7136260	E.W. SUITE(A)			3-22
	UNISERVO VI-C MTU	CHAN 14	1-2	
90536-7136270	PMO-403			3-33
	UNIVAC 1544 MTU	CHAN 10	1	
	UNIVAC 610 CASSETTE	CHAN 14	2	
90536-7136275	SPS-48			3-25
	UNIVAC 1243 MTU	CHAN 02	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	
90536-7136281	CLARINET MIRACLE			3-21
	KENNEDY 9000 MTU	CHAN 00	1	
	INTERCOMPUTER	CHAN 04	2	
90536-7136305	CDS-DN			3-23
	UNIVAC 1243 MTU	CHAN 02-06	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	
90536-7136310	CDS-SD			3-24
	UNIVAC 1540 MTU	CHAN 13-17	1	
	UNIVAC 1243 MTU	CHAN 13-17	2	
90536-7136315	E.W. SUITE(B)			3-29
	INTELLIGENT MEM DISK	CHAN 17	1-2	
90536-7136320	DASS			3-36
	REMEX 6375 PAPER TAPE	CHAN 01	1	
	KENNEDY 2330 CARTRIDGE	CHAN 02	2	
90536-7136325	CMSGT			3-37
	CIPHER DATA PRO C-200 CASS.	CHAN 00	1	
	SINGER CL107MA-A DISK	CHAN 04	2	
90536-7136330	ICAD			3-28
	UNIVAC 1240 MTU	CHAN 04	1	
	CIPHER C-2000 CASSETTE	CHAN 00	2	

90536-7136335	HWLS			3-38
	UNIVAC 610 CASSETTE	CHAN 14	1	
	UNIVAC 1532 PAPER TAPE	CHAN 04	2	
90536-7136355	CDSSD(A)			3-49
	UNIVAC 1540 MTU	CHAN 13-17	1	
	UNIVAC 1243 MTU	CHAN 13-17	2	
90536-7136360	MAGIS(A)			3-40
	UNIVAC 1840M MTU	CHAN 10	1	
	INTERCOMPUTER	CHAN 13	2	
90536-7136376	ESMSP			3-42
	UNIVAC 1532 PAPER TAPE	CHAN 14	1	
	UNIVAC 1540 MTU	CHAN 15	2	
90536-7136385	MK-68			3-39
	MK-68 GFCS PTR	CHAN 03	1-2	
90536-7136390	MK-48(B)			3-41
	UNIVAC 1544 MTU	CHAN 11-15	1	
	CDC 844 DISK	CHAN 13-17	2	
90536-7136396	SOSUS-1			3-16
	CAELUS 206-2 DISK	CHAN 17	1	
	KENNEDY 9000 MTU	CHAN 11	2	
90536-7136400	SSSMP(A)			3-13
	UNIVAC 1532 PAPER TAPE	CHAN 01	1	
	KENNEDY 9000 MTU	CHAN 11	2	
90536-7136405	NSRDC			3-9
	TRI DATA 120 CARTRIDGE	CHAN 10	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136410	SANGUINE(A)			3-10
	PERTEC MTU 800 BPI	CHAN 00	1	
	REMEX RR-0302 PAPER	CHAN 01	2	
90536-7136417	NAVMACS			3-20
	UNIVAC 1532 PAPER TAPE	CHAN 15	1	
	UNIVAC CARTRIDGE MCTS	CHAN 16	2	
90536-7136420	LAMPS			3-31
	MOHAWK DATA SCI 2021 CART.	CHAN 04	1	
	UNIVAC 1540 MTU	CHAN 12	2	
90536-7136425	STMA			3-44
	UNIVAC 1870 CASSETTE	CHAN 04	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136430	ISABPS			3-47
	TT/187 PAPER TAPE READER	CHAN 07	1	
	SYSTEM INDUSTRIES 3500 DISK	CHAN 17	2	
90536-7136435	SRD-19			3-46
	UNIVAC 1870 CASSETTE	CHAN 04	1-2	
90536-7136440	SANGUINE(B)			3-43
	AN/UGC-48A PAPER TAPE	CHAN 10	1	
	KENNEDY 2330 CARTRIDGE	CHAN 05	2	

90536-7136445	SANGUINE(C)			3-26
	KENNEDY 9000 MTU	CHAN 00	1	
	KENNEDY 2330 CARTRIDGE	CHAN 05	2	
90536-7136450	PAIR			3-45
	UNIVAC 1840M MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 01	2	
90536-7136455	WSC-2			3-53
	NAVY ANTENNA CONTROL	CHAN ---	1-2	
90536-7136460	DDR			3-50
	UNIVAC DDR MTU READ/WRITE FILE	CHAN 00	1	
90536-7136465	CMTU			3-48
	AN/USH-26 CMTU	CHAN 00	1	
90536-7136475	SSES			3-34
	UNIVAC 1840M MTU	CHAN 00	1	
	TT-187 PAPER TAPE	CHAN 07	2	
90536-7136480	MK86			3-54
	UNIVAC 1540 MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 10	2	
90536-7136490	CLASSIC CALIPER(B)			3-99
	DDC 7310 DISK	CHAN 04	1	
	AN/USH-26 CMTU	CHAN 14	2	
90536-7136500	SSES(B)			3-17
	KENNEDY 9000 MTU	CHAN 14	1	
	UNIVAC 1532 PAPER TAPE	CHAN 04	2	
90536-7136506	TRIDENT			3-51
	INTERCOMPUTER	CHAN 00	1	
	INTERCOMPUTER	CHAN 01	2	
90536-7136510	TRIDENT(B)			3-63
	INTERCOMPUTER	CHAN 00	1	
	OJ-172 DEAC MTU	CHAN 02	2	
90536-7136515	SEAFARER(A)			3-56
	AN/USH-26 CMTU	CHAN 05	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136520	SEAFARER(B)			3-52
	AN/USH-26 CMTU	CHAN 05	1	
	UNIVAC 1532 PAPER TAPE	CHAN 00	2	
90536-7136527	ITAOC			3-95
	UNIVAC 1840M MTU	CHAN 03	1	
	PERTEC FLOPPY DISK	CHAN 03	2	
90536-7136531	ITBOIP			3-72
	UNIVAC 1232A PAPER TAPE	CHAN 17	1	
	UNIVAC 1540 MTU	CHAN 12-16	2	
90536-7136535	NTDS			3-55
	UNIVAC 1540 MTU	CHAN 03-07	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	

90536-7136540	ATLTYP4			3-60
	CIPHER C-2000 CASSETTE	CHAN 16	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136545	ATLTYP4(B)			3-68
	CIPHER DATA PRO C-200 CART.	CHAN 16	1	
	SINGER CL107MA-A DISK	CHAN 17	2	
90536-7136550	IRR			3-64
	UNISERVO VI-C MTU	CHAN 13	1-2	
90536-7136555	IRR(B)			3-75
	SINGER CL107MA-A DISK	CHAN 16	1	
	POTTER MTU	CHAN 14	2	
90536-7136560	SOSUS-2			3-57
	AN/USH-26 CMTU	CHAN 12	1	
90536-7136566	SOSUS-3			3-62
	AN/USH-26 CMTU	CHAN 00	1	
	INTERCOMPUTER	CHAN 04	2	
90536-7136570	SOSUS-4			3-61
	AN/USH-26 CMTU	CHAN 12	1	
	SYSTEM INDUSTRIES 9500	CHAN 11-15	2	
90536-7136575	SURTASS			3-81
	UNIVAC 1870 CASSETTE	CHAN 07	1	
	SINGER LIBRASCOPE	CHAN 17	2	
90536-7136581	NTDS(B)			3-69
	UNIVAC 1243 MTU	CHAN 03-07	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	
90536-7136588	NAVMACS(B)			3-59
	AN/USH-26 CMTU	CHAN 00	1	
	RD-397 PAPER TAPE	CHAN 01	2	
90536-7136592	GYBFJP5			3-77
	UNIVAC 1870 PAPER TAPE	CHAN 06	1	
	UNIVAC 1870 CASSETTE	CHAN 06	2	
90536-7136595	SQR-XX(B)			3-58
	AN/USH-26 CMTU	CHAN 01	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136625	SQR-XX			3-66
	WANGCO DISK	CHAN 17	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136631	SURTASS(B)			3-74
	UNIVAC 1870 CASSETTE	CHAN 07	1	
	SYSTEM INDUSTRIES 9500	CHAN 11-15	2	
90536-7136636	S58FC1G			3-65
	AN/USH-26 CMTU	CHAN 17	1	
	UNIVAC 1540 MTU	CHAN 16	2	
90536-7136640	JALBFP5			3-67
	REMEX 6375 PAPER TAPE	CHAN 00	1	
	KENNEDY 9000 MTU	CHAN 04	2	

90536-7136650	SPS-48(B)			3-70
	OJ-172 DEAC PAPER TAPE	CHAN 02-06	1	
	OJ-172 DEAC MTU	CHAN 02-06	2	
90536-7136656	SPS-48(C)			3-71
	UNIVAC 1231 PAPER TAPE	CHAN 01	1	
	UNIVAC 1840M MTU	CHAN 02-06	2	
90536-7136663	PDTS			3-73
	AN/USH-26 CMTU	CHAN 03	1	
	UNIVAC 1240 MTU	CHAN 07	2	
90536-7136667	MK23TAS			3-78
	AN/USH-26 CMTU	CHAN 01	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136675	TSCT			3-76
	WANGCO DISK	CHAN 17	1	
	KENNEDY 9000 MTU	CHAN 13	2	
90536-7136685	AEGIS			3-82
	UNIVAC 1840M MTU	CHAN 10	1	
	INTERCOMPUTER	CHAN 01-05	2	
90536-7136690	TFCC			3-133
	UNIVAC 1840 MTU	CHAN 01	1	
	IBM RD-281 DISK	CHAN 00	2	
90536-7136825	SPS-48(D)			3-85
	UNIVAC 1243 MTU	CHAN 02-06	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	
90536-7136830	AEGIS(B)			3-84
	AN/USH-26 CMTU	CHAN 05	1	
90536-7136835	LAMPS(A)			3-86
	OJ-172 DEAC MTU	CHAN 02-06	1	
	UNIVAC 1840M MTU	CHAN 03-07	2	
90536-7136841	JALBEA			3-83
	UNIVAC 1870 PAPER TAPE	CHAN 00	1	
	UNIVAC 1870 CASSETTE	CHAN 00	2	
90536-7136846	PLRS			3-97
	UNISERVO VI-C MTU	CHAN 00	1	
	AN/USH-26 CMTU	CHAN 06	2	
90536-7136851	SSSMP(B)			3-88
	AN/USH-26 CMTU	CHAN 01	1	
	SINGER LIBRASCOPE	CHAN 17	2	
90536-7136855	ATLTYP4(C)			3-87
	WANGCO DISC	CHAN 10	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136860	NCSL-CME			3-93
	CIPHER MTU	CHAN 00	1	
	DDC M6200-128 DISK	CHAN 01	2	
90536-7136865	IRR(C)			3-90
	UNIVAC 1540 MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 16	2	

90536-7136870	IRR(D)			3-92
	UNISERVO VI-C MTU	CHAN 13	1	
	SINGER CL107MA DISK	CHAN 17	2	
90536-7136876	ISABPS(B)			3-89
	TT/187 PAPER TAPE READER	CHAN 01	1	
	SYSTEM INDUSTRIES 3500 DISK	CHAN 17	2	
90536-7136880	MAGIS(C)			3-105
	UNIVAC 1840M MTU	CHAN 04	1	
	INTERCOMPUTER	CHAN 07	2	
90536-7136888	NAVMACS(C)			3-91
	AN/USH-26 CMTU	CHAN 16	1	
	RD-397 PAPER TAPE	CHAN 15	2	
90536-7136891	TACINTEL			3-94
	AN/USH-26 CMTU	CHAN 00	1	
	SYSTEM INDUSTRIES 3500 DISK	CHAN 17	2	
90536-7136896	OUTBOARD			3-96
	AN/USH-26 CMTU	CHAN 14	1	
	INTERCOMPUTER	CHAN 02	2	
90536-7136900	CCIS			3-98
	UNIVAC 1532 PAPER TAPE	CHAN 00	1	
	UNIVAC 610 CASSETTE	CHAN 05	2	
90536-7136915	SQR-19			3-134
	AN/USH-26 CMTU	CHAN 01	1	
	IBM RASS DISK (AN/UYH-7(V)	CHAN 17	2	
90536-7136920	AEGIS(C)			3-120
	AN/USH-26 CMTU	CHAN 10	1	
	UNIVAC 1840M MTU	CHAN 14	2	
90536-7136925	MK-68(B)			3-101
	UNIVAC 1840M MTU	CHAN 00	1	
	SPERRY GYRO PAPER TAPE	CHAN 13	2	
90536-7136930	SURTASS(C)			3-100
	KENNEDY 9000 MTU	CHAN 07	1	
	SYSTEM INDUSTRIES 9500 DISK	CHAN 13-17	2	
90536-7136935	AEGIS(D)			3-104
	UNIVAC 1840M MTU	CHAN 07	1	
	CDC 9762 DISK	CHAN 13-17	2	
90536-7136941	SPS-48(E)			3-80
	AN/USH-26 DRIVE 0	CHAN 01	1	
	AN/USH-26 DRIVE 1	CHAN 01	2	
90536-7136946	COMDAC			3-102
	AN/USH-26 CMTU	CHAN 10	1	
	CL107MB SINGER DISK	CHAN 11	2	
90536-7136952	LAMPS(B)			3-106
	AN/USH-26 DRIVE 0	CHAN 01	1	
	AN/USH-26 DRIVE 1	CHAN 01	2	
	1540 MTU (SELECTED FROM M. PANEL)	CHAN 16	1-2	

90536-7136955	PDTS(B)			3-103
	UNIVAC 1243 MTU	CHAN 03-07	1	
	AN/USH-26 CMTU	CHAN 01	2	
90536-7136960	SEAFARER(C)			3-108
	KENNEDY 9000 MTU	CHAN 00	1	
	AN/USH-26 CMTU	CHAN 11	2	
90536-7136965	SEAFARER(D)			3-130
	AN/USH-26 CMTU	CHAN 04	1	
	CL107MA SINGER DISK	CHAN 07	2	
90536-7136970	RAPLOC			3-109
	UNIVAC 610 CASSETTE	CHAN 00	1	
	KENNEDY 9000 MTU	CHAN 13	2	
90536-7136975	ISPE			3-107
	AN/USH-26 CMTU	CHAN 17	1	
	SONAR DATA BUFFER	CHAN 16	2	
90536-7136980	RAPLOC(A)			3-131
	UNIVAC 1840M MTU	CHAN 03-07	1	
	INTERCOMPUTER	CHAN 00-04	2	
90536-7137025	TYQ			3-112
	AN/USH-26 CMTU	CHAN 03	1	
	PERTEC FLOPPY DISC	CHAN 03	2	
90536-7137035	AEGIS(E)			3-119
	AN/USH-26 CMTU	CHAN 03	1	
	UNIVAC 1840M MTU	CHAN 07	2	
90536-7137045	LINK-11			3-115
	AN/USH-26 CMTU	CHAN 01	1	
	OJ-172 DEAC MTU	CHAN 03-07	2	
90536-7137055	NIPS			3-121
	UNIVAC 1840M MTU	CHAN 06	1	
	UNIVAC 1532 PAPER TAPE	CHAN 12	2	
90536-7313450	AEGIS(F)			3-110
	AN/USH-26 CMTU	CHAN 16	1	
	UNIVAC 1532 PAPER TAPE	CHAN 00	2	
90536-7313455	CANADA(B)			3-111
	AN/USH-26 CMTU	CHAN 10	1	
	REMEX 6375 PAPER TAPE	CHAN 12	2	
90536-7313598	TARTAR			3-117
	OJ-172 DEAC MTU	CHAN 17	1	
	OJ-172 DEAC PAPER TAPE	CHAN 17	2	
90536-7313603	SYS-1(B)			3-126
	AN/USH-26 CMTU	CHAN 17	1	
	UNIVAC 1545 DISK	CHAN 07	2	
90536-7313608	SYS-CG			3-116
	AN/USH-26 CMTU	CHAN 01	1	
	PDP-11/70 MTU	CHAN 00	2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7313613	CVNS			3-114
	UNIVAC 1540 MTU	CHAN 10	1	
	UNIVAC 1532 PAPER TAPE	CHAN 00	2	
90536-7313618	SYS-1(A)			3-113
	AN/USH-26 CMTU	CHAN 17	1	
	KENNEDY 9000 MTU	CHAN 16	2	
90536-7315663	VLS			3-118
	AN/USH-26 CMTU	CHAN 01	1	
	UNIVAC 1532 PAPER TAPE	CHAN 04	2	
90536-7315840	SEANYMPH			3-122
	GENISCO MD CLR-20 MTU	CHAN 13	1	
	DDC MDMS-20 6300 DISK	CHAN 17	2	
90536-7317896	NAVMACS(D)			3-124
	RD-433 DISK UNIT	CHAN 16	1	
	INTERCOMPUTER	CHAN 14	2	
90536-7317902	NAVMACS(E)			3-125
	AN/USH-26 CMTU	CHAN 16	1	
	INTERCOMPUTER	CHAN 14	2	
90536-7319748	SNSNTIF			3-128
	AN/USH-26 CMTU	CHAN 01	1	
	OJ-172 DEAC MTU	CHAN 03-07	2	
90536-7320706	CVNS(A)			3-129
	AN/USH-26 CMTU	CHAN 10	1	
	UNIVAC 1532 PTP RDR	CHAN 15	2	
90536-7321211	SURTASS(D)			3-127
	AN/UYH-3 DISK	CHAN 13	1	
	AN/USH-26 CMTU	CHAN 14	2	
90536-7321935	MAPS			3-145
	AN/USH-26 CMTU	CHAN 00	1	
	MICROPOLIS DISK	CHAN 15	2	
90536-7321986	OUTBOARD(A) EM*			3-146
	AN/UYH-7(V) DISK EM	CHAN 15	1	
	AN/UYH-7(V) DISK EM	CHAN 07	2	
	AN/USH-26 CMTU EM	CHAN 03		
90536-7322652	CCSC			3-151
	AN/USH-26 CMTU	CHAN 00	1	
	UNIVAC 1545 DISK	CHAN 17	2	
90536-7322814	IRR (E)			3-152
	CL107MA DISK UNIT	CHAN 17,16	1	
	AN/USH-26 CMTU	CHAN 14	2	
90536-7323578	MK-68(C)			3-158
	UNIVAC 1840M MTU	CHAN 00	1	
	RAYMOND 6415 CART.	CHAN 05	2	

* All bootstraps identified with an EM (Expanded Memory) were designed for the AN/UYK-20A computers. All bootstraps will run on either an expanded memory DPS or a DPS without expanded memory (within their limitations).

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7323584	NAVMACS(F) REV A			3-153
	RD-433 DISK UNIT	CHAN 16,17	1	
	INTERCOMPUTER	CHAN 14,15	2	
90536-7323874	NAVMACS (G) REV A			3-154
	INTERCOMPUTER	CHAN 14	1	
	AN/USH-26 CMTU	CHAN 16	2	
90536-7324696	TARTAR (A) EM*			3-159
	UNIVAC 1870 CASSETTE EM	CHAN 00	1	
	AN/USH-26 CMTU EM	CHAN 02	2	
	UNIVAC 1870 PTP RDR EM	CHAN 00	FROM M.P.	
90536-7324757	IRR (F)			3-160
	CL107MA DISK UNIT	CHAN 17,16	1	
	AN/USH-26 CMTU	CHAN 14	2	
90356-7327092	B20F15			3-165
	AN/USH-26 CMTU	CHAN 03	1	
	RD-358 (U1840M) MTU	CHAN 13-17	2	
90536-7327704	NAVMACS (H)			3-167
	AN/USH-26 CMTU	CHAN 01	1	
	RD-358 (U1840M) MTU	CHAN 12-16	2	
90536-7330301	RANDDG			3-166
	AN/USH-26 CMTU	CHAN 01	1	
	OJ-172 DEAC MTU	CHAN 16	2	
90536-7330302	SQR19AA			3-123
	AN/USH-26 CMTU	CHAN 01	1	
	INTERCOMPUTER	CHAN 4,5	2	
90536-7330303	NRIA			3-132
	UNIVAC 1543 MTU	CHAN 02	1	
	DDC MDMS-20 6300 DISK	CHAN 17	2	
90536-7332166	PATAFBT			3-169
	UNIVAC 1545 MTU	CHAN 11	1	
	UNIVAC 1543 MTU	CHAN 13	2	

* All bootstraps identified with an EM (Expanded Memory) were designed for the AN/UYK-20A computers. All bootstraps will run on either an expanded memory DPS or a DPS without expanded memory (within their limitations).

COMMON SERIAL I/O OPERATING MODE SELECTION INSTRUCTIONS

DESCRIPTION – Common serial I/O consists of two new serial interface kits which supersede all existing MIL-188C and RS-232C interface kits (refer to the following table).

COMMON SERIAL I/O KITS

DESCRIPTION	MIL-188C	RS-232C
KIT PART NUMBER	90536-7313567-02	90536-7313568-02
NOMENCLATURE	MK-2051/UYK-20(V)	MK-2048/UYK-20(V)
CARD TYPE I OR IA	90536-7312528-00	90536-7312528-00
CARD TYPE II OR III	90536-7312530-02	90536-7312670-04

The new cards use field alterable contact jumpers to permit interchangeability at the circuit card level. Use a needle-nose pliers to install and remove contact jumpers (90536-7098775-01).

INTERCHANGEABILITY AT THE CARD LEVEL – The common serial I/O Kit Type I/IA card replaces all previous Type I/IA cards and the Type II/III cards replace all previous Type II/III cards. Use the following procedure to replace an existing card.

1. Remove existing card, locate the card part number in Table Type I or IA or Table Type II or III, and determine appropriate jumper locations.

2. Install contact jumpers in TB1(J3) for Type I/IA cards to match the configuration shown in Table Type I or IA. For Type II/III cards install contact jumpers in TB1(J3) and TB2(J4) as shown in Table Type II or III. The Configuration Definition Table defines symbols used in Table Type I or IA and Table Type II or III. See page 40 for TB locations.

3. Place new common serial card in the card jack occupied by the old card.

GROUP INSTALLATION – Group installation provides additional jumper selectable options. To select any mode place a jumper over the symbol representing that mode (see Table Type I or IA and Table Type II or III). Selection of sync/async can be incorporated at the channel level. For example, to make the odd channel sync mode, place a contact jumper over (SO) on Type I or IA and over (SO) on Type II or III. To make even channel async mode, place contact jumper over (AE) on Type I or IA and over (AE) on Type II or III. Two new asynchronous baud rates, 4800 and 9600, have been added. Also, an option has been added to allow the forced use of a single jumpered asynchronous baud rate independent of programmed selection, i.e., if only 9600 baud rate is selected, the two channel group will operate at 9600 baud rate regardless of programmed selection. Four baud rates may be selected for maximum use. A zero/one fill option is provided for input characters less than 8 bits in length. When running diagnostics, the zero/one fill option must be in the one's fill mode.

CONFIGURATION DEFINITION

TYPE I OR IA		
SYMBOL	MODE	J3(TB1)
SO	ODD CHANNEL SYNC	PINS 14 AND 15
AO	ODD CHANNEL ASYNC	PINS 13 AND 14
SE	EVEN CHANNEL SYNC	PINS 11 AND 12
AE	EVEN CHANNEL ASYNC	PINS 10 AND 11
RS	RS232C INTERFACE	PINS 8 AND 9
ML	MIL-188C INTERFACE	PINS 7 AND 8
1F	ONE'S FILL	PINS 5 AND 6
0F	ZERO FILL	PINS 4 AND 5
SP	SPARE JUMPER	PINS 1 AND 2

TYPE II OR III					
SYMBOL	MODE	J3(TB1)	SYMBOL	MODE	J4(TB2)
AE	EVEN CHANNEL ASYNC	PINS 11 AND 12	.75	75 BPS	PINS 15 AND 16
SE	EVEN CHANNEL SYNC	PINS 10 AND 11	1.5	150 BPS	PINS 13 AND 14
AO	ODD CHANNEL ASYNC	PINS 8 AND 9	3	300 BPS	PINS 11 AND 12
SO	ODD CHANNEL SYNC	PINS 7 AND 8	6	600 BPS	PINS 9 AND 10
SP	SPARE JUMPER	PINS 1 THROUGH 6	12	1200 BPS	PINS 7 AND 8
			24	2400 BPS	PINS 5 AND 6
			48	4800 BPS	PINS 3 AND 4
			96	9600 BPS	PINS 1 AND 2

TYPE I OR IA JUMPER LOCATIONS

	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1&2 SP	TB1 4&5 0F	TB1 5&6 1F	TB1 7&8 ML	TB1 8&9 RS	TB1 10&11 AE	TB1 11&12 SE	TB1 13&14 AO	TB1 14&15 SO	CONNECTOR PINS SYMBOL
MIL-188C SYNC	7119437	7010 00 522 3583	SP		X	X			X		X	
MIL-188C ASYNC	7133227	7010 00 522 4259	SP		X	X		X		X		
RS232C SYNC	7119446	7010 00 522 3598	SP		X		X		X		X	
RS232C ASYNC	7133306	7010 00 525 1389	SP		X		X	X		X		

TYPE II OR III JUMPER LOCATIONS

	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1-6 SP	TB1 7&8 SO	TB1 8&9 AO	TB1 10&11 SE	TB1 11&12 AE	TB2 1&2 96	TB2 3&4 48	TB2 5&6 24	TB2 7&8 12	TB2 9&10 6	TB2 11&12 3	TB2 13&14 1.5	TB2 15&16 .75
MIL-188C ASYNC	7133231	7010 00 522 4265	SP		X		X	N/A	N/A			X	X	X	X
MIL-188C ASYNC	7133235	7010 00 522 4269	SP		X		X	N/A	N/A		X		X	X	X
MIL-188C ASYNC	7133240	7010 00 522 4289	SP		X		X	N/A	N/A	X		X	X	X	X
MIL-188C ASYNC	7133245	7010 00 522 4304	SP		X		X	N/A	N/A		X	X		X	X
MIL-188C ASYNC	7133250	7010 00 522 4308	SP		X		X	N/A	N/A	X		X		X	X
MIL-188C ASYNC	7133255	7010 00 522 4344	SP		X		X	N/A	N/A	X	X			X	X
MIL-188C ASYNC	7133260	7010 00 522 4375	SP		X		X	N/A	N/A		X	X	X		X
MIL-188C ASYNC	7133265	7010 00 522 4396	SP		X		X	N/A	N/A	X		X	X		X
MIL-188C ASYNC	7133271	7010 00 522 4410	SP		X		X	N/A	N/A	X	X		X		X
MIL-188C ASYNC	7133275	7010 00 525 1216	SP		X		X	N/A	N/A		X	X	X	X	
MIL-188C ASYNC	7133280	7010 00 525 1254	SP		X		X	N/A	N/A	X		X	X	X	
MIL-188C ASYNC	7133285	7010 00 525 1314	SP		X		X	N/A	N/A	X	X	X	X		

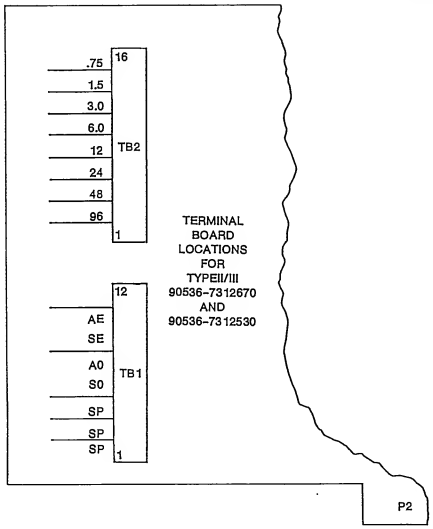
N/A IMPLIES NOT AVAILABLE

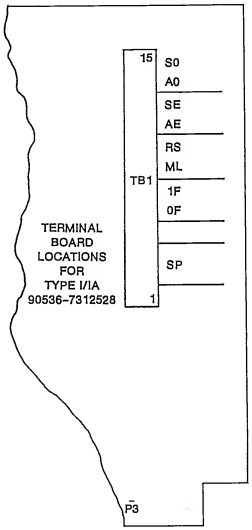
TYPE II OR III JUMPER LOCATIONS (continued)

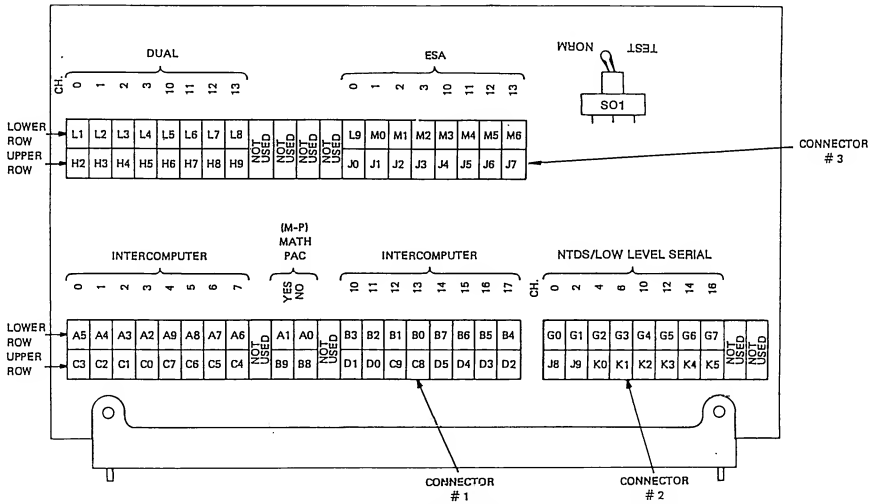
	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1–6 SP	TB1 7&8 SO	TB1 8&9 AO	TB1 10&11 SE	TB1 11&12 AE	TB2 1&2 96	TB2 3&4 48	TB2 5&6 24	TB2 7&8 12	TB2 9&10 6	TB2 11&12 3	TB2 13&14 1,5	TB2 15&16 .75
MIL-188C ASYNC	7133291	7010 00 525 1383	SP		X		X	N/A	N/A	X	X	X			X
MIL-188C ASYNC	7133295	7010 00 525 1386	SP		X		X	N/A	N/A	X	X	X		X	
MIL-188C ASYNC	7133300	7010 00 525 1388	SP		X		X	N/A	N/A	X	X		X	X	
RS232C ASYNC	7133310	7010 00 578 2336	SP		X		X	N/A	N/A			X	X	X	X
RS232C ASYNC	7133315	5999 01 065 8309	SP		X		X	N/A	N/A		X		X	X	X
RS232C ASYNC	7133320	7010 LL HHA 1609			X		X	N/A	N/A	X			X	X	X
RS232C ASYNC	7133325	7010 LL HHA 1610			X		X	N/A	N/A		X	X		X	X
RS232C ASYNC	7133330	7010 01 003 6382	SP		X		X	N/A	N/A	X		X		X	X
RS232C ASYNC	7133335	7010 01 003 6386	SP		X		X	N/A	N/A	X	X			X	X
RS232C ASYNC	7133340	7010 LL HHA 1613	SP		X		X	N/A	N/A		X	X	X		X
RS232C ASYNC	7133345	7010 LL HHA 1614	SP		X		X	N/A	N/A	X		X	X		X
RS232C ASYNC	7133350	7010 01 003 6383	SP		X		X	N/A	N/A	X	X		X		X
RS232C ASYNC	7133355	5999 01 065 8310	SP		X		X	N/A	N/A		X	X	X	X	
RS232C ASYNC	7133360	7010 LL HHA 1617	SP		X		X	N/A	N/A	X		X	X	X	
RS232C ASYNC	7133365	7010 01 003 6380	SP		X		X	N/A	N/A	X	X	X	X		
RS232C ASYNC	7133370	7010 00 525 1414	SP		X		X	N/A	N/A	X	X	X			X
RS232C ASYNC	7132100	7010 01 003 6387	SP		X		X	N/A	N/A	X	X	X		X	
RS232C ASYNC	7132105	7010 00 578 2338	SP		X		X	N/A	N/A	X	X		X	X	
MIL-188C SYNC	7119441	7010 00 522 3590	SP	X		X		N/A	N/A						
RS232C SYNC	7119450	7010 00 578 2300	SP	X		X		N/A	N/A						

N/A IMPLIES NOT AVAILABLE

TERMINAL BOARD LOCATIONS
COMMON SERIAL PC ASSEMBLIES

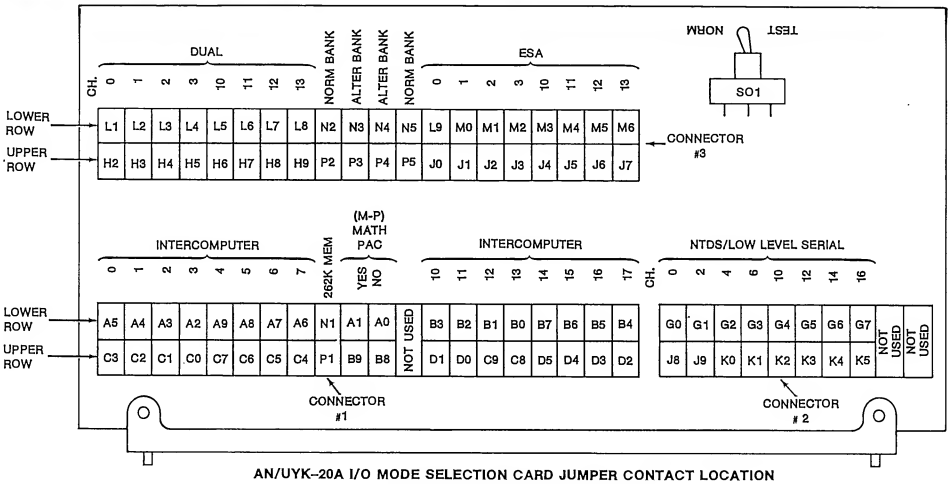






SEE PAGE 45 FOR JUMPER PLACEMENT

AN/UYK-20 I/O MODE SELECTION CARD JUMPER CONTACT LOCATION
COMPONENT SIDE (90536-7125980-01)



AN/UYK-20A I/O MODE SELECTION CARD JUMPER CONTACT LOCATION
COMPONENT SIDE (90536-7310512-01)

SEE PAGES 45 AND 46 FOR JUMPER PLACEMENT

NOTE: PINS P1 AND N1 OF CONNECTOR NUMBER 1 MUST ALWAYS BE JUMPERED IN THE AN/UYK-20A(V).

I/O MODE SELECTION CARD JUMPER LOCATIONS*

CHAN.	CONNECTOR 3 NORM (16-BIT)	CONNECTOR 3 DUAL (32-BIT)	CONNECTOR 3 ESA** (32-BIT)	CONNECTOR 1 IC*** (16,32)	CONNECTOR 2 NTDS/LOW LEVEL SERIAL (32-BIT)	CONNECTOR 3 VACALES, 188C, OR 232C
0	Jumper L1 to H2	Remove L1 to H2	Jumper L9 to J0	Jumper A5 to C3	Jumper G0 to J8	Jumper L1 to H2
1	Jumper L2 to H3	Remove L2 to H3	Jumper M0 to J1	Jumper A4 to C2	–	Jumper L2 to H3
2	Jumper L3 to H4	Remove L3 to H4	Jumper M1 to J2	Jumper A3 to C1	Jumper G1 to J9	Jumper L3 to H4
3	Jumper L4 to H5	Remove L4 to H5	Jumper M2 to J3	Jumper A2 to C0	–	Jumper L4 to H5
4	See 0	See 0	See 0	Jumper A9 to C7	Jumper G2 to K0	See 0
5	See 1	See 1	See 1	Jumper A8 to C6	–	See 1
6	See 2	See 2	See 2	Jumper A7 to C5	Jumper G3 to K1	See 2
7	See 3	See 3	See 3	Jumper A6 to C4	–	See 3
10_8	Jumper L5 to H6	Remove L5 to H6	Jumper M3 to J4	Jumper B3 to D1	Jumper G4 to K2	Jumper L5 to H6
11_8	Jumper L6 to H7	Remove L6 to H7	Jumper M4 to J5	Jumper B2 to D0	–	Jumper L6 to H7
12_8	Jumper L7 to H8	Remove L7 to H8	Jumper M5 to J6	Jumper B1 to C9	Jumper G5 to K3	Jumper L7 to H8
13_8	Jumper L8 to H9	Remove L8 to H9	Jumper M6 to J7	Jumper B0 to C8	–	Jumper L8 to H9
14_8	See 10_8	See 10_8	See 10_8	Jumper B7 to D5	Jumper G6 to K4	See 10_8
15_8	See 11_8	See 11_8	See 11_8	Jumper B6 to D4	–	See 11_8
16_8	See 12_8	See 12_8	See 12_8	Jumper B5 to D3	Jumper G7 to K5	See 12_8
17_8	See 13_8	See 13_8	See 13_8	Jumper B4 to D2	–	See 13_8

*Volume 3, Part 1, Figures 9-152 and 9-153.
**Jumper in the selected dual channel position must be removed.
***If IC channel is also to be dual or ESA, IC jumper only the lower channel of the pair.

NOTE: PINS P1 AND N1 OF CONNECTOR NUMBER 1 MUST ALWAYS BE JUMPERED IN THE AN/UYK-20A(V).

I/O MODE SELECTION CARD JUMPER REQUIREMENTS FOR AN/UYK-20 AND AN/UYK-20A

MODE SELECTED	CONNECTOR NUMBER	MODE SELECTION REQUIREMENTS								262K MEM	NORM BANK/ ALTER BANK
		IC	NTDS/LOW LEVEL SERIAL	DUAL	ES	MATH PAC YES	MATH PAC NO	TEST MODE SWITCH NORM	TEST MODE SWITCH TEST		
NORMAL	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NA*	NA*	X			
IC	1	JUMPER	NA	(1)	(1)	NA*	NA*	X			
NTDS/LOW LEVEL SERIAL	2	NA	JUMPER	JUMPER	NO JUMPER	NA*	NA*	X			
DUAL**	3	(1)	NO JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X			
ESA	3	(1)	NO JUMPER	NO JUMPER	JUMPER	NA*	NA*	X			
MATH PAC	1	NA	NA	NA	NA	JUMPER A1-B9	NO JUMPER A0-B8	NA	NA	NOTE 5	NOTE 5
NO MATH PAC	1	NA	NA	NA	NA	JUMPER A1-B9	NO JUMPER A0-B8	NA	NA		
188C or VACALES	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NA*	NA*	X			
232C	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NA*	NA*	X			
TEST MODE	SWITCH	(2)	(2)	(2)	(2)	NA*	NA*	(2)	(2)		
EXPANDED MEMORY OPTION	1	NA	NA	NA	NA	NA	NA	NA	NA	NOTE 4	NOTE 4
	3	NA	NA	NA	NA	NA	NA	NA	NA	NOTE 3	NOTE 3

X Denotes Select.

NA Denotes Not Applicable.

* If Math Pac Option is available, connector 1 contacts A1-B9 must be jumpered. If Math Pac Option is not available, connector 1 contacts A0-B8 must be jumpered.

** All unused dual channels must have jumpers installed, connector 3.

(1) If IC mode is desired with dual or ESA, on IC select only the lower numbered channel.

(2) If test position is selected, all channels will be forced into IC mode except the upper half of dual/ESA channels.

(3) NORM BANK – for normal numbering of memory banks (stacks 0,1,2,3 – BANK 0; stacks 4,5,6,7 – BANK 1) Jumper contacts N2 to P2 and N5 to P5.
ALTER BANK – for INTERLEAVING numbering of memory banks (stacks 0,2,4,6 – BANK 0; stacks 1,3,5,7 – BANK 1) Jumper contacts N3 to P3 and N4 to P4. (ALTER is to be used only with expanded memory.)

(4) If DPS is an AN/UYK-20A, contact N1 must always be jumpered to P1.

(5) Expanded memory does not affect the jumpering of the other options, they remain the same as for the DPS with standard memory.

AN/UYK-20 RETROFIT DEFINITION

The AN/UYK-20 is currently being retrofitted to correct anomalies inherent to hardware design. Retrofit I and II are complete. To identify the current retrofit status of an AN/UYK-20 the Field Change (FC) plate will be stamped with MPL or FCO numbers. It should be noted, however, that all AN/UYK-20 computers delivered after the last serial number of the respective MPLs will have been retrofitted in the factory and will not be stamped with the MPL or FCO number.

Example: AA817 will not be stamped with MPL-1534, MPL-1592 or MPL-1698.

The retrofit number, MPL or FCO number, and serial number affected by the MPL are identified in the table below:

RET. I MPL-1534

Serials A1-A325, A327, A328, A330-A342, A344-A347, A413, A436, A490

RET. II MPL-1592

Serials A1-A442, A444-A461, A463-488, A490-A504, A507, A512-A515, A517, A519, A520, A525-A527, A530, A533, A535, A544-A546, A552, A556, A567, A574, A581, A586, A635.

RET. III MPL-1698

Serials A1-A816

RET. IV FCO-151513

Serials A1-A794 with DMA, A1-AA1204 with NTDS Serial I/O, A1-AA1619 with 3 Phase - 60 Hz. Pwr. Sup., A160, A770, A795-AA1084, AA1092, AA1095, AA1099, AA1104, AA1110, AA1111, AA1115, AA1120, AA1166, AA1204.

RET. V

FCO 190706 Serials A1-AA1500 with PIC I/O
FCO 190707 Serials AA1501-AA1672 with PIC I/O
FCO 205294 Serials A1-B2600 with NTDS Serial I/O

All correspondence on retrofit status should be directed to NESEA Retrofit Coordinator:
Commanding Officer
Naval Electronic Systems Engineering Activity
St. Inigoes, MD 20684-0010
Attn: Code 2251
AN/UYK-20 ISEA
AV: 356-3511/3512
COM: 301-862-8815

AN/UYK - 20 PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES REQUIRED

QTY PER EQUIP.	NAME	DESIGNATION	REQUIRED USE
1	TECHNICAL MANUAL. VOL. 1	SE610-AV-MMO-010 (NSN 0910-LP-043-7680)	TECHNICAL DOCUMENTATION
1	TECHNICAL MANUAL. VOL. 2	SE610-AV-MMO-020 (NSN 0910-LP-043-7690)	REFERENCE DATA
1	TECHNICAL MANUAL. VOL. 3 PART 1 VOL. 3 PART 2	SE610-AV-MMO-030 (NSN 0910-LP-043-7700) SE610-AV-MMO-040 (NSN 0910-LP-043-7800)	EQUIPMENT DIAGRAMS
1	TECHNICAL MANUAL. VOL. 4	SE610-AV-MMO-050 (NSN 0910-LP-043-7900)	DIAGNOSTIC OP PROCEDURES
1	TECHNICAL MANUAL. VOL. 5	SE610-AV-MMO-060 (NSN 0910-LP-043-8000)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL. VOL. 6	SE610-AV-MMO-070 (NSN 0910-LP-043-8100)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL. VOL. 7	SE610-AV-MMO-080 (NSN 0910-LP-043-8200)	CONFIDENCE TESTS
1	HARDWARE USER'S GUIDE	TE610-AD-GYD-010	
1	CP/MEMORY DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-010	TROUBLESHOOTING
1	I/O DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-020	TROUBLESHOOTING
1	OPTIONS DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-030	TROUBLESHOOTING
1	CONFIDENCE TEST (56K) PROGRAM TAPE(S)	TE610-AD-SWP-040	CONFIDENCE TESTING
1	CONFIDENCE (24K), CP/MEMORY PROGRAM TAPE	TE610-AD-SWP-050	CONFIDENCE TESTING
1	CONFIDENCE TEST (24K), I/O PROGRAM TAPE	TE610-AD-SWP-060	CONFIDENCE TESTING
1	CONFIDENCE TEST (24K), OPTIONS PROGRAM TAPE	TE610-AD-SWP-070	CONFIDENCE TESTING
*	MICRO GROWTH 1 DIAGNOSTIC TAPE	TE610-AD-SWP-080	TROUBLESHOOTING MICRO GROWTH 1 CARD
*	MICRO GROWTH 2 DIAGNOSTIC TAPE	TE610-AD-SWP-090	TROUBLESHOOTING MICRO GROWTH 2 CARD
*	MICRO GROWTH 3 DIAGNOSTIC TAPE	TE610-AD-SWP-100	TROUBLESHOOTING MICRO GROWTH 3 CARD
*	MICRO GROWTH 4 DIAGNOSTIC TAPE	TE610-AD-SWP-110	TROUBLESHOOTING MICRO GROWTH 4 CARD
1	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150225-00 (NSN 5935-01-089-5457) OR -7126394-00 (NSN 7010-01-019-1541)	I/O END-AROUND JUMPERING (CHANNELS 0-3)
2	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150226-00 (NSN 5935-01-089-5458) OR -7126394-00 (NSN 7010-01-019-1541)	I/O END-AROUND JUMPERING (CHANNELS 4-17)

*ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFIGURED INTO THE DPS.

AN/UYK - 20 PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES REQUIRED
(continued)

QTY PER EQUIP	NAME	DESIGNATION	REQUIRED USE
1	SINGLE CHANNEL JUMPER PLUG,SERIAL	90536-7150233-00 (NSN 5935-01-089-5459)	I/O JUMPERING OF SERIAL CHANNELS (1888C, RS232C, VACALES)
*	CROSS CHANNEL WRAP-AROUND CABLE, SERIAL	90536-7103939-00	I/O JUMPING OF SERIAL CHANNELS (188C, RS232C, VACALES
*	EXTERNAL FUNCTION GENERATOR	VARIABLE	PROVIDE EXTERNAL CLOCK FOR SYNC CHANNELS
*	32-BIT (DUAL) CHANNEL JUMPER PLUG, PARALLEL	90536-7126375-00 (INPUT) (NSN 7010-01-100-3217) 90536-7126375-01 (OUTPUT) (NSN 7010-01-100-3218)	TO PERMIT 32-BIT (DUAL PARALLEL CHANNEL OPERATION)
1	HEX-HEAD DRIVER	90535-7903056-03 (NSN 5120-00-126-7282)	OPEN CABINET
1	LOGIC CARD EXTRACTOR	90536-7100903-00 (NSN 7010-00-602-6004)	REMOVE CP LOGIC PC CARDS
1	MEMORY CARD EXTRACTOR	90536-7134954-00 (Right-Hand) (NSN 7010-01-003-6117) 90536-7134953-00 (Left-Hand) (NSN 7010-00-602-6003)	REMOVE I/O AND MEMORY PC CARDS
REF DATA	OUTLINE AND INSTALLATION DWG	NAVSEA RE-E5033644	
	DRAWING LIST	NAVSEA RE-B5033696	
	BLOCK DIAGRAM	NAVSEA RE-D5033642	
	CABLE RUN DIAGRAM	NAVSEA RE-A5033640	
	SUMMARY OF INSTALL MLT	NAVSEA RE-C5033641	
	I/O SHEETS	NAVSEA RE-D5033643	

* ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFIGURED INTO THE DPS.
THE PROGRAM TAPES LISTED ARE AVAILABLE FROM:

COMMANDING OFFICER
NAVAL ELECTRONIC SYSTEM ENGINEERING ACTIVITY
ST. INIGOES, MD 20684 - 0010
ATTN: CODE 2251
AN/UYK - 20 ISEA
AV: 356 - 3511/3512

AN/UYK - 20 PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES REQUIRED

QTY PER EQUIP.	NAME	DESIGNATION	REQUIRED USE
1	TECHNICAL MANUAL. VOL. 1	SE610-A3-MMO-010 (NSN 0910-LP-302-8500)	TECHNICAL DOCUMENTATION
1	TECHNICAL MANUAL. VOL. 2	SE610-A3-MMO-020 (NSN 0910-LP-302-8600)	REFERENCE DATA
1	TECHNICAL MANUAL. VOL. 3	SE610-A3-MMO-030 (NSN 0910-LP-302-8700)	EQUIPMENT DIAGRAMS
1	TECHNICAL MANUAL. VOL. 4	SE610-A3-MMO-040 (NSN 0910-LP-302-8800)	DIAGNOSTIC OP PROCEDURES
1	TECHNICAL MANUAL. VOL. 5	SE610-A3-MMO-050 (NSN 0910-LP-302-8900)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL. VOL. 6	SE610-A3-MMO-060 (NSN 0910-LP-302-9000)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL. VOL. 7	SE610-A3-MMO-070 (NSN 0910-LP-302-9100)	CONFIDENCE TESTS
1	HARDWARE USER'S GUIDE	SE610-A3-GYD-010	
1	CP/MEMORY DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-01A	TROUBLESHOOTING
1	I/O DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-02A	TROUBLESHOOTING
1	OPTIONS DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-03A	TROUBLESHOOTING
1	CONFIDENCE TEST (56K) PROGRAM TAPE(S)	TE610-AL-SWP-04A	CONFIDENCE TESTING
1	CONFIDENCE (24K), CP/MEMORY PROGRAM TAPE	TE610-AL-SWP-05A	CONFIDENCE TESTING
1	CONFIDENCE TEST (24K), I/O PROGRAM TAPE	TE610-AL-SWP-06A	CONFIDENCE TESTING
1	CONFIDENCE TEST (24K), OPTIONS PROGRAM TAPE	TE610-AL-SWP-07A	CONFIDENCE TESTING
*	MICRO GROWTH 1 DIAGNOSTIC TAPE	TE610-AL-SWP-080	TROUBLESHOOTING MICRO GROWTH 1 CARD
*	MICRO GROWTH 2 DIAGNOSTIC TAPE	TE610-AL-SWP-090	TROUBLESHOOTING MICRO GROWTH 2 CARD
*	MICRO GROWTH 3 DIAGNOSTIC TAPE	TE610-AL-SWP-100	TROUBLESHOOTING MICRO GROWTH 3 CARD
*	MICRO GROWTH 4 DIAGNOSTIC TAPE	TE610-AL-SWP-11A	TROUBLESHOOTING MICRO GROWTH 4 CARD
1	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150225-00 (NSN 5935-01-089-5457) OR -7126394-00 (NSN 7010-01-019-1541)	I/O END-AROUND JUMPERING (CHANNELS 0-3)
2	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150226-00 (NSN 5935-01-089-5458) OR -7126394-00 (NSN 7010-01-019-1541)	I/O END-AROUND JUMPERING (CHANNELS 4-17)
1	SINGLE CHANNEL JUMPER PLUG, SERIAL	90536-7150233-00 (NSN 5935-01-089-5459)	I/O JUMPERING OF SERIAL CHANNELS (1888C, RS232C, VACALES)

*ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFIGURED INTO THE DPS.

AN/UYK - 20 PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES REQUIRED (continued)

QTY PER EQUIP.	NAME	DESIGNATION	REQUIRED USE
*	CROSS CHANNEL WRAP–AROUND CABLE SERIAL	90536–7103939–00	I/O JUMPING OF SERIAL CHANNELS (188C, RS232C, VACALES)
*	EXTERNAL FUNCTION GENERATOR	VARIABLE	PROVIDE EXTERNAL CLOCK FOR SYNC CHANNELS
*	32–BIT (DUAL) CHANNEL JUMPER PLUG, PARALLEL	90636–7126375–00 (INPUT) (NSN 7010–01–100–3217) 90536–7123675–01 (OUTPUT) (NSN 7010–01–100–3218)	TO PERMIT 32–BIT (DUAL PARALLEL CHANNEL OPERATION)
1	HEX–HEAD DRIVER	90536–7903056–03 (NSN 5120–00–126–7282)	OPEN CABINET
1	LOGIC CARD EXTRACTOR	90536–7100903–00 (NSN 7010–00–602–6004)	REMOVE CP LOGIC PC CARDS
1	MEMORY CARD EXTRACTOR	90536–7134954–00 (Right–Hand) (NSN 7010–01–003–6117) 90536–7134953–00 (Left–Hand) (NSN 7010–00–602–6003)	REMOVE I/O AND MEMORY PC CARDS
REF DATA	OUTLINE AND INSTALLATION DWG	NAVSEA RE–E5033644	
	DRAWING LIST	NAVSEA RE–B5033696	
	BLOCK DIAGRAM	NAVSEA RE–D5033642	
	CABLE RUN SHEETS	NAVSEA RE–A5033640	
	SUMMARY OF INSTALL MLTS	NAVSEA RE–C5033641	
	I/O SHEETS	NAVSEA RE–D5033643	

*ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFGURED INTO THE DPS.
THE PROGRAM TAPES LISTED ARE AVAILABLE FROM:

COMMANDING OFFICER
NAVAL ELECTRONIC SYSTEMS ENGINEERING ACTIVITY
ST. INIGOES, MD 20684–0010
ATTN: CODE 2251
NA/UYK–20 ISEA
AV: 356–3511/3512
COM: 301–862–6815

PART NUMBER	SUPERSEDES	SUPERSEDED BY
905411–04	–	7150314–00
905411–06	–	7150314–01
7092030–01	–	7092031–01
7092031–01	7092030–01	7092032–01
7092032–01	7092031–01	7125960–01
7092175–01	–	7092176–01
7092176–01	7092175–01	7150210–01
7092181–01	–	7135265–01
7092185–01	–	7092187–01
7092187–01	7092185–01	–
7092195–01	–	–
7092200–01	–	7092201–01
7092201–01	7092200–01	–
7101824–01	–	7101824–02
7101824–02	7101824–01	7101824–03
7101824–03	7101824–02	–
7101840–00	–	7135560–00
7101875–00	–	7135561–00
7101880–00	–	7150352–00
7101885–00	–	7135563–00
7101963–01	–	–
7101963–02	–	–
7101966–01	–	–
7101966–02	–	–
7101990–00	–	7135564–00
7101995–00	–	7135565–00
7119316–01	–	7150465–01
7119380–01	–	–
7119385–01	–	7132152–01, –02, –03
7119390–01	–	7132154–01, –02, –03
7119395–01	–	–
7119400–01	–	7119401–01
7119401–01	7119400–01	7132146–01
7119405–01	–	7132150–01, –02, –03
7119410–01	–	–
7119415–01	–	7132156–01, –02, –03
7119420–01	–	7132158–01, –02, –03
7119425–01	–	7119426–01
7119426–01	7119425–01	7150325–01
7119430–01	–	7119431–01
7119431–01	7119430–01	7119432–01
7119432–01	7119431–01	7119432–02
7119432–02	7119432–01	–
7119435–01	–	7119436–01
7119436–01	7119435–01	7119437–01
7119437–01	7119436–01	7312528–00
7119440–01	–	7119441–01
7119441–01	7119440–01	7312530–00, –01, –02
7119445–01	–	7119446–01
7119446–01	7119445–01	7312528–00
7119450–01	–	7312670–00, –02, –04
7125125–01	–	7125126–01
7125126–01	7125125–01	7125127–01
7125127–01	7125126–01	7125128–01
7125128–01	7125127–01	7125129–01
7125129–01	7125128–01	–
7125130–01	–	7125131–01
7125131–01	7125130–01	7125132–01
7125132–01	7125131–01	7125133–01
7125133–01	7125132–01	–
7125135–01	–	7125136–01
7125136–01	7125135–01	–
7125150–01	–	7125151–01
7125151–01	7125150–01	–
7125155–01	–	7125156–01

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7125156–01	7125155–01	7125157–01
7125157–01	7125156–01	–
7125175–01	–	–
7125235–01	–	7125236–01
7125236–01	7125235–01	7125237–01
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7125240–01	–	7125241–01
7125241–01	7125240–01	–
7125275–01	–	7125276–01
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7125290–01	–	–
7125305–01	–	7125306–01
7125306–01	7125305–01	7125307–01
7125307–01	7125306–01	–
7125310–01	–	7125311–01
7125311–01	7125310–01	–
7125380–01	–	–
7125385–01	–	7125386–01
7125386–01	7125385–01	7125387–01
7125387–01	7125386–01	7150400–01
7125405–01	–	7125406–01
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7125416–01	7125415–01	7125417–01
7125417–01	7125416–01	–
7125500–01	–	–
7125510–01	–	7150465–01
7125665–01	–	7125666–01
7125666–01	7125665–01	7150220–01
7125925–01	–	7125926–01
7125926–01	7125925–01	–
7125960–01	7092032–01	7125961–01
7125961–01	7125960–01	7150320–01
7125980–01	–	–
7126065–01	–	7126066–01
7126066–01	7126065–01	–
7126070–01	–	7126071–01
7126071–01	7126070–01	7137000–01
7126125–01	–	–
7126130–01	–	–
7126135–01	–	7126136–01
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7126137–01	7126136–01	7150395–01
7126140–01	–	7126141–01
7126141–01	7126140–01	7126142–01
7126142–01	7126141–01	–
7126145–01	–	7126146–01
7126146–01	7126145–01	7126147–01
7126147–01	7126146–01	7136295–01
7126150–01	–	7126151–01
7126151–01	7126150–01	7150475–01
7126155–01	–	7126156–01
7126156–01	7126155–01	–
7126160–01	–	–
7126165–01	–	7126166–01
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7126167–01	7126166–01	–
7126170–01	–	7126171–01
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7126172–01	7126171–01	–
7126175–01	–	–
7126180–01	–	7126181–01
7126181–01	7126180–01	–
7126185–01	–	7126186–01
7126186–01	7126185–01	7150420–01
7126190–01	–	7126191–01
7126191–01	7126190–01	7136350–01
7126195–01	–	7126196–01
7126196–01	7126195–01	7150405–01
7126200–01	–	7126200–02
7126200–02	7126200–01	–
7126205–01	–	7126206–01
7126206–01	7126205–01	7126207–01
7126207–01	7126206–01	7150480–01
7126375–00	–	–
7126375–01	–	–
7126382–04	–	7128082–00
7126384–00	–	7150486–00
7126386–00	–	7150490–00

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7128082-00	7126382-04	-
7132100-01	-	7312670-00, -02, -04
7132105-01	-	7312670-00, -02, -04
7132110-01	-	-
7132115-01	-	7132148-01
7132120-01	-	7132121-01, -02, -03
7132121-01	7132120-01	-
7132121-02	7132120-01	-
7132121-03	7132120-01	-
7132125-01	-	7132126-01
7132126-01	7132125-01	-
7132130-01	-	7132131-01, -02, -03
7132131-01	7132130-01	-
7132131-02	7132130-01	-
7132131-03	7132130-01	-
7132135-01	-	7132136-01
7132136-01	7132135-01	-
7132140-01	-	-
7132146-01	7119401-01	7132146-11, -12, -13
7132146-11	7132146-01	-
7132146-12	7132146-01	-
7132146-13	7132146-01	-
7132148-01	7132115-01	7132148-11, -12, -13
7132148-11	7132148-01	-
7132148-12	7132148-01	-
7132148-13	7132148-01	-
7132150-01	7119405-01	-
7132150-02	7119405-01	-
7132150-03	7119405-01	-
7132152-01	7119385-01	-
7132152-02	7119385-01	-
7132152-03	7119385-01	-
7132154-01	7119390-01	-
7132154-02	7119390-01	-
7132154-03	7119390-01	-
7132156-01	7119415-01	-
7132156-02	7119415-01	-
7132156-03	7119415-01	-
7132158-01	7119420-01	-
7132158-02	7119420-01	-
7132158-03	7119420-01	-
7132199-00	-	7132199-01
7132199-01	7132199-00	7132197-00
7133225-01	-	7133226-01
7133226-01	7133225-01	7133227-01
7133227-01	7133226-01	7312528-00
7133230-01	-	7133231-01
7133231-01	-	7312530-00, -01, -02
7133235-01	-	7312530-00, -01, -02
7133240-01	-	7312530-00, -01, -02
7133245-01	-	7312530-00, -01, -02
7133250-01	-	7312530-00, -01, -02
7133255-01	-	7312530-00, -01, -02
7133260-01	-	7312530-00, -01, -02
7133265-01	-	7312530-00, -01, -02
7133270-01	-	7133271-01
7133271-01	7133270-01	7312530-00, -01, -02
7133275-01	-	7312530-00, -01, -02
7133280-01	-	7312530-00, -01, -02
7133285-01	-	7312530-00, -01, -02
7133290-01	-	7133291-01
7133291-01	7133290-01	7312530-00, -01, -02
7133295-01	-	7312530-00, -01, -02
7133300-01	-	7312530-00, -01, -02
7133305-01	-	7133306-01
7133306-01	7133305-01	7312528-00
7133310-01	-	7312670-00, -02, -04
7133315-01	-	7312670-00, -02, -04
7133320-01	-	7312670-00, -02, -04
7133325-01	-	7312670-00, -02, -04
7133330-01	-	7312670-00, -02, -04
7133335-01	-	7312670-00, -02, -04
7133340-01	-	7312670-00, -02, -04
7133345-01	-	7312670-00, -02, -04
7133350-01	-	7312670-00, -02, -04
7133355-01	-	7312670-00, -02, -04
7133360-01	-	7312670-00, -02, -04
7133365-01	-	7312670-00, -02, -04
7133370-01	-	7312670-00, -02, -04
7133909-00	-	7133909-01
7133909-01	7133909-00	-
7133909-02	-	-
7133910-00	-	7133910-01
7133910-01	7133910-00	7133910-02
7133910-02	7133910-01	-
7133910-03	-	-
7133934-00	-	7133934-01
7133934-01	7133934-00	7133934-02

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7133934-02	7133934-01	7134994-00
7133943-00	-	7309623-00
7133943-01	-	7309623-01
7134942-00	-	-
7134942-01	-	-
7134974-02	-	7308013-00
7134974-03	-	7308013-01
7134994-00	7133934-02	7134994-01
7134994-01	7134994-00	7134994-02
7134994-02	7134994-01	7134994-03
7134994-03	7134994-02	-
7134998-00	-	-
7134998-01	-	-
7135560-00	7101840-00	7150350-00
7135561-00	7101875-00	7150351-00
7135563-00	7101885-00	7150353-00
7135564-00	7101990-00	7150354-00
7135565-00	7101995-00	7150355-00
7135570-00	-	7135570-02
7135570-01	-	7135570-03
7135570-02	7135570-00	7150383-00
7135570-03	7135570-01	7150383-01
7136150-01	-	-
7136155-01	-	-
7136160-01	-	-
7136165-01	-	-
7136170-01	-	-
7136185-01	-	7136186-01
7136186-01	7136185-01	-
7136190-01	-	-
7136195-01	-	-
7136205-01	-	-
7136210-01	-	-
7136215-01	-	7136216-01
7136216-01	7136215-01	-
7136220-01	-	-
7136225-01	-	7136226-01
7136226-01	7136225-01	-
7136230-01	-	-
7136235-01	-	-
7136245-01	-	-
7136250-01	-	-
7136255-01	-	7136256-01
7136256-01	7136255-01	-
7136260-01	-	-
7136265-01	7092181-01	7136266-01
7136266-01	7136265-01	-
7136270-01	-	-
7136275-01	-	-
7136280-01	-	7136281-01
7136281-01	7136280-01	-
7136285-01	-	-
7136290-01	-	7136291-01
7136291-01	7136290-01	-
7136295-01	7126147-01	-
7136305-01	-	-
7136310-01	-	-
7136315-01	-	-
7136320-01	-	-
7136325-01	-	-
7136330-01	-	-
7136335-01	-	-
7136350-01	7126191-01	7136351-01
7136351-01	7136350-01	-
7136355-01	-	-
7136360-01	-	-
7136370-01	-	7136371-01
7136371-01	7136370-01	7136905-01
7136375-01	-	7136376-01
7136376-01	7136375-01	-
7136385-01	-	-
7136390-01	-	-
7136395-01	-	7136396-01
7136396-01	7136395-01	-
7136400-01	-	-
7136405-01	-	-
7136410-01	-	-
7136415-01	-	7136416-01

PART NUMBER	SUPERSEOES	SUPERSEDED BY
7136416-01	7136415-01	7136417-01
7136417-01	7136416-01	-
7136420-01	-	-
7136425-01	-	-
7136430-01	-	-
7136435-01	-	-
7136440-01	-	-
7136445-01	-	-
7136450-01	-	-
7136455-01	-	-
7136460-01	-	-
7136465-01	-	-
7136475-01	-	-
7136480-01	-	-
7136490-01	-	-
7136500-01	-	-
7136505-01	-	7136506-01
7136506-01	7136505-01	-
7136510-01	-	-
7136515-01	-	-
7136520-01	-	-
7136525-01	-	7136526-01
7136526-01	7136525-01	7136527-01
7136527-01	7136526-01	-
7136530-01	-	7136531-01
7136531-01	7136530-01	-
7136535-01	-	-
7136540-01	-	-
7136545-01	-	-
7136550-01	-	-
7136555-01	-	-
7136560-01	-	-
7136565-01	-	7136566-01
7136566-01	7136565-01	-
7136570-01	-	-
7136575-01	-	-
7136580-01	-	7136581-01
7136581-01	7136580-01	-
7136585-01	-	7136586-01
7136586-01	7136585-01	7136587-01
7136587-01	7136586-01	7136588-01
7136588-01	7136587-01	-
7136590-01	-	7136591-01
7136591-01	7136590-01	7136592-01
7136592-01	7136591-01	-
7136595-01	-	-
7136625-01	-	-
7136630-01	-	7136631-01
7136631-01	7136630-01	-
7136635-01	-	7136636-01
7136636-01	7136635-01	-
7136640-01	-	-
7136650-01	-	-
7136655-01	-	7136656-01
7136656-01	7136655-01	-
7136660-01	-	7136661-01
7136661-01	7136660-01	7136662-01
7136662-01	7136661-01	7136663-01
7136663-01	7136662-01	-
7136665-01	-	7136666-01
7136666-01	7136665-01	7136667-01
7136667-01	7136666-01	-
7136670-01	-	7136671-01
7136671-01	7136670-01	-
7136675-01	-	-
7136685-01	-	-
7136690-01	-	-
7136695-01	-	-
7136825-01	-	-
7136830-01	-	-
7136835-01	-	-
7136840-01	-	7136841-01
7136841-01	7136840-01	-
7136845-01	-	7136846-01
7136846-01	7136845-01	-
7136850-01	-	7136851-01
7136851-01	7136850-01	-
7136855-01	-	-

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7136860-01	-	-
7136865-01	-	-
7136870-01	-	-
7136875-01	-	7136876-01
7136876-01	7136875-01	-
7136880-01	-	-
7136885-01	-	7136886-01
7136886-01	7136885-01	7136887-01
7136887-01	7136886-01	7136888-01
7136888-01	7136887-01	-
7136890-01	-	7136891-01
7136891-01	7136890-01	-
7136895-01	-	7136896-01
7136896-01	7136895-01	-
7136900-01	-	-
7136905-01	7136771-01	-
7136915-01	-	-
7136920-01	-	-
7136925-01	-	-
7136930-01	-	-
7136935-01	-	-
7136940-01	-	7136941-01
7136941-01	7136940-01	-
7136945-01	-	7136946-01
7136946-01	7136945-01	-
7136950-01	-	7136951-01
7136951-01	7136950-01	7136952-01
7136952-01	7136951-01	-
7136955-01	-	-
7136960-01	-	-
7136965-01	-	-
7136970-01	-	-
7136975-01	-	-
7136980-01	-	-
7137000-01	7126071-01	-
7137025-01	-	-
7137035-01	-	-
7137045-01	-	-
7137070-01	-	-
7137130-01	-	7137130-02
7137130-02	7137130-01	-
7150210-01	7092176-01	-
7150220-01	7125666-01	-
7150267-00	-	-
7150267-01	-	-
7150295-01	7150322-01	-
7150304-00	-	-
7150314-00	905411-04	-
7150314-01	905411-06	-
7150320-01	7125961-01	7150322-01
7150322-01	7150320-01	7150295-01
7150325-01	7119426-01	7150326-01
7150326-01	7150325-01	7310690-01
7150338-01	-	-
7150338-02	-	-
7150338-03	-	-
7150350-00	7135560-00	7150350-01
7150350-01	7150350-00	7150350-02
7150350-02	7150350-01	-
7150351-00	7135561-00	7150351-01
7150351-01	7150351-00	7150351-02
7150351-02	7150351-01	7150351-03
7150351-03	7150351-02	-
7150352-00	7101880-00	7150352-01
7150352-01	7150352-00	7150352-02
7150352-02	7150352-01	7150352-03
7150352-03	7150352-02	7150352-04
7150352-04	7150352-03	-
7150353-00	7135563-00	7150353-01
7150353-01	7150353-00	7150353-02
7150353-02	7150353-01	7150353-03
7150353-03	7150353-02	-
7150354-00	7135564-00	7150354-01
7150354-01	7150354-00	7150354-02
7150354-02	7150354-01	7150354-03
7150354-03	7150354-02	7150354-04
7150354-04	7150354-03	-
7150355-00	7135565-00	7150355-01

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7150355-01	7150355-00	7150355-02
7150355-02	7150355-01	-
7150383-00	7135570-02	7150383-02
7150383-01	7135570-03	7150383-03
7150383-02	7150383-00	7308028-00
7150383-03	7150383-01	7308028-01
7150395-01	7126137-01	7150396-01
7150396-01	7150395-01	7150397-01
7150397-01	7150396-01	-
7150400-01	7125387-01	7150401-01
7150401-01	7150400-01	-
7150405-01	7126196-01	-
7150415-01	-	-
7150420-01	7126186-01	7150421-01
7150421-01	7150420-01	-
7150460-01	-	7150465-01
7150465-01	7118316-01	-
7150465-01	7125510-01	-
7150465-01	7150460-01	-
7150475-01	7126151-01	-
7150480-01	7126207-01	-
7150486-00	7126384-00	-
7150490-00	7126386-00	-
7155180-01	-	-
7157864-01	-	7310594-00
7308013-00	7134974-02	-
7308013-01	7134974-03	-
7308028-00	7150383-02	-
7308028-01	7150383-03	-
7309295-01	-	-
7309623-00	7133943-00	-
7309623-01	7133943-01	-
7310014-06	-	7310014-08
7310014-07	-	7310014-09
7310014-08	7310014-06	-
7310014-09	7310014-07	-
7310022-18	-	-
7310510-01	-	-
7310512-01	-	-
7310514-01	-	7310514-02
7310514-02	7310514-01	-
7310516-01	-	7310516-02
7310516-02	7310516-01	-
7310518-01	-	-
7310520-01	-	-
7310522-01	-	-
7310524-01	-	-
7310526-01	-	-
7310534-01	-	7310534-02
7310534-02	7310534-01	7310534-03
7310534-03	7310534-02	7310534-04
7310534-04	7310534-03	7310534-05
7310534-05	7310534-04	-
7310536-01	-	7310536-02
7310536-02	7310536-01	7310536-03
7310536-03	7310536-02	-
7310538-01	-	-
7310594-00	7157864-01	-
7310690-01	7150326-01	7312344-01
7312344-01	7310690-01	7312344-02
7312344-02	7312344-01	7312344-03
7312344-03	7312344-02	7312344-04
7312344-04	7312344-03	7312344-05
7312344-05	7312344-04	7312344-06, -07, -08
7312344-06	7312344-05	-
7312344-07	7312344-05	-
7312344-08	7312344-05	-
7312528-00	7119446-01	-
7312528-00	7119437-01	-
7312528-00	7133227-01	-
7312528-00	7133306-01	-
7312530-00	7119441-01	-
7312530-00	7133231-01	-
7312530-00	7133235-01	-
7312530-00	7133240-01	-
7312530-00	7133245-01	-

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7312530-00	7133250-01	-
7312530-00	7133255-01	-
7312530-00	7133260-01	-
7312530-00	7133265-01	-
7312530-00	7133271-01	-
7312530-00	7133275-01	-
7312530-00	7133280-01	-
7312530-00	7133285-01	-
7312530-00	7133291-01	-
7312530-00	7133295-01	-
7312530-00	7133300-01	-
7312530-01	7119441-01	-
7312530-01	7133231-01	-
7312530-01	7133235-01	-
7312530-01	7133240-01	-
7312530-01	7133245-01	-
7312530-01	7133250-01	-
7312530-01	7133255-01	-
7312530-01	7133260-01	-
7312530-01	7133265-01	-
7312530-01	7133271-01	-
7312530-01	7133275-01	-
7312530-01	7133280-01	-
7312530-01	7133285-01	-
7312530-01	7133291-01	-
7312530-01	7133295-01	-
7312530-01	7133300-01	-
7312530-02	7119441-01	-
7312530-02	7133231-01	-
7312530-02	7133235-01	-
7312530-02	7133240-01	-
7312530-02	7133245-01	-
7312530-02	7133250-01	-
7312530-02	7133255-01	-
7312530-02	7133260-01	-
7312530-02	7133265-01	-
7312530-02	7133271-01	-
7312530-02	7133275-01	-
7312530-02	7133280-01	-
7312530-02	7133285-01	-
7312530-02	7133291-01	-
7312530-02	7133295-01	-
7312530-02	7133300-01	-
7312670-00	7119450-01	-
7312670-00	7132100-01	-
7312670-00	7132105-01	-
7312670-00	7133310-01	-
7312670-00	7133315-01	-
7312670-00	7133320-01	-
7312670-00	7133325-01	-
7312670-00	7133330-01	-
7312670-00	7133335-01	-
7312670-00	7133340-01	-
7312670-00	7133345-01	-
7312670-00	7133350-01	-
7312670-00	7133355-01	-
7312670-00	7133360-01	-
7312670-00	7133365-01	-
7312670-00	7133370-01	-
7312670-02	7119450-01	-
7312670-02	7132100-01	-
7312670-02	7132105-01	-
7312670-02	7133310-01	-
7312670-02	7133315-01	-
7312670-02	7133320-01	-
7312670-02	7133325-01	-
7312670-02	7133330-01	-
7312670-02	7133335-01	-
7312670-02	7133340-01	-
7312670-02	7133345-01	-
7312670-02	7133350-01	-
7312670-02	7133355-01	-
7312670-02	7133360-01	-
7312670-02	7133365-01	-
7312670-02	7133370-01	-
7312670-04	7119450-01	-
7312670-04	7132100-01	-
7312670-04	7132105-01	-

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7312670-04	7133310-01	-
7312670-04	7133315-01	-
7312670-04	7133320-01	-
7312670-04	7133325-01	-
7312670-04	7133330-01	-
7312670-04	7133335-01	-
7312670-04	7133340-01	-
7312670-04	7133345-01	-
7312670-04	7133350-01	-
7312670-04	7133355-01	-
7312670-04	7133360-01	-
7312670-04	7133365-01	-
7312670-04	7133370-01	-
7312682-06	-	7312682-07
7312682-07	7312682-06	-
7313052-01	-	-
7313450-01	-	-
7313455-01	-	-
7313550-13	-	-
7313598-01	-	-
7313603-01	-	-
7313608-01	-	-
7313613-01	-	-
7313618-01	-	-
7314830-01	-	-
7315270-01	-	-
7315663-01	-	-
7315840-01	-	-
7316476-00	-	7316476-01
7316476-01	7316476-00	7316476-02
7316476-02	7316476-01	-
7316478-00	-	7316478-01
7316478-01	7316478-00	7316478-02
7316478-02	7316478-01	7316478-03
7316478-03	7316478-02	7316478-04, -05, -06
7316478-04	7316478-03	7316478-07
7316478-05	7316478-03	7316478-07
7316478-06	7316478-03	7316478-07
7316478-07	7316478-04, -05, -06	-
7316994-00	-	-
7316994-01	-	-
7317896-01	-	-
7317902-01	-	-
7317908-01	-	7321211-01
7319065-01	-	7330302-01
7319072-01	-	7330303-01
7319748-01	-	-
7320637-01	-	7321244-01
7320706-01	-	-
7321211-01	7317908-01	-
7321244-01	7320637-01	7321624-01
7321528-01	-	-
7321618-01	-	-
7321624-01	7321244-01	-
7321935-01	-	-
7321986-01	-	-
7322151-01	-	-
7322535-01	-	-
7322536-01	-	-
7322652-01	-	-
7322814-01	-	-
7323146-01	-	7323584-01
7323152-01	-	7323561-01
7323179-01	-	-
7323371-01	-	-
7323538-01	-	-
7323561-01	7323152-01	7323874-01
7323578-01	-	-
7323584-01	7323146-01	-
7323874-01	7323561-01	-
7324131-01	-	-
7324696-01	-	-
7324757-01	-	-
7327092-01	-	-

PART NUMBER	SUPERSEDES	SUPERSEDED BY
7327170-01	-	7330301-01
7327704-01	-	-
7330301-01	7327170-01	-
7330302-01	7319065-01	-
7330303-01	7319072-01	-
7332166-01	-	-

AN/UYK-20/20A ABBREVIATED ENHANCED DIAGNOSTIC OPERATING PROCEDURES

The procedures contained in the following paragraphs provide abbreviated instructions necessary to execute the Diagnostic Programs. Any errors detected while executing these procedures are explained in SE610-AV-MM0-050 paragraphs 11-16 through 11-27 for the AN/UYK-20, and in SE610-A3-MM0-040 paragraphs 11-16 through 11-27 for the AN/UYK-20A.

Microdiagnostic Program Execution Procedure

1. Stop and Master Clear
2. Initial switch settings

ALTER MODE SET/CLR	SET
PROCESSOR DISABLE RT CLK	INT
PROCESSOR DISABLE ADV P	DOWN
PROCESSOR DISABLE INTER CMPTR TIME OUT	DOWN
BREAK PT READ/OFF	OFF
BREAK PT WRITE/OFF	OFF

3. Press DISPLAY SELECT CLR. DISPLAY NUMBER = 0
4. Press MODE MICRO STEP
5. Set DIAGNOSTIC DISPLAY switch down and DIAGNOSTIC JUMP switch to up
6. Press MA CLR
7. Press MODE RUN indicator
8. Press GENL REG
9. Press DISPLAY NUMBER indicator switches corresponding to octal value of bootstrap load channel.
10. Press PROG RUN
11. Press AUTO START SWITCH four times
12. If bootstrap load channel is a MIL-STD-188C or RS-232C or VACALES type channel, set ALTER MODE SET/CLR to CLR position.
13. Press DISPLAY SELECT CLR (initiates Microdiagnostics)
14. PROG RUN lite extinguish
15. REGISTER/DATA = 070707. For any other value see technical manual.

CP/MEMORY DIAGNOSTIC OPERATING PROCEDURES

1. Load CP/Memory Diagnostics
2. Press GEN REG and DISPLAY SELECT CLR. Display = 0
3. Press REG/DATA SET/CLR. Display (GR0) = 000000
4. Set PROGRAM STOP 1/OFF switch to OFF
5. Set PROGRAM STOP 2/OFF switch to 2
6. Set BOOTSTRAP 1/2 switch to down position
7. Press and observe GENL DSPL. indicator lit
8. Press REGISTER/DATA SET/CLR
9. Press REGISTER/DATA SET (P Reg.) switches 6 and 8 (000500)
10. Set AUTO START/START switches to START
    PROG RUN indicator extinguished
    REGISTER/DATA = 000522
11. Set PROGRAM STOP 1/OFF switch to 1 and PROGRAM STOP 2/OFF switch to OFF
12. Set BOOTSTRAP 1/2 switch to up position
13. Set AUTO START/START to START
    PROG RUN extinguished
    REGISTER/DATA (P reg.) = 000532
14. Set AUTO START/START to START
    PROG RUN extinguished
    REGISTER/DATA (P reg.) = 000551
15. Press GENL REG
16. Press DISPLAY NUMBER switches for octal 04. Observe REGISTER/DATA (GR4) = 000000
17. Press DISPLAY NUMBER switches for octal 05. Observe REGISTER/DATA (GR5) = 000536
18. Press DISPLAY NUMBER switches for octal 07. Observe REGISTER/DATA (GR7) = 000546
19. Press GENL DSPL switch
20. Press DISPLAY SELECT CLR
21. AUTO START/START to START
    PROG RUN indicator extinguished
    REGISTER/DATA (P reg.) = 000563
22. Set GR0, GR1, and GR2 to CP/Memory Configuration as follows:

GR0	Bit 0	Math Pac Installed
	Bit 1	Micro Growth Installed
	Bit 2	General Register set 2 Installed
	Bit 3	DMA Installed
	Bits 4-15	Not used
GR1	Bits 0-7	Memory Stacks Installed
GR2	Bits 0-7	Memory Stacks to be tested

23. Set both PROGRAM STOP switches to up position
24. Press GENL DSPL and DISPLAY SELECT CLR
25. Press AUTO START/START to START
    Observe PROG RUN extinguishes
    REGISTER/DATA (P reg.):
    AN/UYK-20 = 000761
    AN/UYK-20A = 000765
    FAULT PROG inc or lit

I/O DIAGNOSTIC PROGRAM OPERATING PROCEDURE

NOTE: If any common serial I/O channels are to be tested, ensure the zero/one fill option on the type 1/1A card (P/N 90536-7312528) is set to the one-fill mode (reference common serial mode selection instructions pages 39-42 of the Technical Summary.

1. Load I/O Diagnostic
2. Set switches to positions specified

INTERCMPTR TIME OUT	DOWN
GENL DSPL	SET
DISPLAY SELECT CLR	MOMENTARILY PRESSED
BOOTSTRAP 1/2	1
PROGRAM STOP 1/Off	1
PROGRAM STOP 2/Off	2
TEST/NORMAL on I/O Mode Sel Card in DPS location 23C	TEST (LEFT POS)
MA CLR	MOMENTARILY PRESSED

3. Set P = 500 Octal
4. Press START
5. Program stops at P = 510
6. Set GR0 through GR17 to I/O channel availability and configuration and RTC Rates as determined by the I/O CHANNEL SELECTION TABLE (See page 61)
7. Jumper channels
8. Select P Reg
9. Press START
10. Program stops at P = 001063 (001073 for AN/UYK-20A)
11. FAULT PROG should be lit.
12. Set the TEST/NORMAL switch on I/O Mode Select card in DPS location 23C to NORMAL (right position).

OPTIONS DIAGNOSTIC PROGRAM OPERATING PROCEDURE

A predetermined series of steps are required to initialize and execute the Options Diagnostic tests 1-6. These options are listed below in the order of execution.

TEST NUMBER	TEST NAME	MAX TIME (SEC) UYK-20	UYK-20A
1	MATH PAC TEST	1	1
2	WORST CASE MEMORY TEST	45	90
3	SHIFTING BIT MEMORY TEST	30	160
4	GENERAL REGISTER GALPAT TEST	1	1
5	PAGE REGISTER GALPAT TEST	2	37
6	I/O CONTROL MEMORY GALPAT TEST	25	25
7	MAX BUFFER TEST	4	4
8	I/O CONCURRENT TEST	20	20
	Total time approximately:	2 min.	6 min.

1. Load the Options Diagnostic.
2. Initial switch settings.

GENL DSPL	PRESS
DISPLAY SELECT CLR	PRESS
BOOTSTRAP 1/2	1
PROGRAM STOP 1/OFF	1
PROGRAM STOP 2/OFF	2
MA CLR	PRESS
TEST/NORMAL ON I/O MODE SEL CARD IN DPS LOCATION 23C	TEST (LEFT POS)

3. Press and observe REGISTER/DATA indicator-switches (P register) = 000500.
4. Press AUTO START/START switch to START.
5. Observe PROG RUN indicator extinguished.
6. Observe REGISTER/DATA indicator-switches (P register) = 000512.
   a. If correct, perform step 7.
   b. If incorrect, suspect card is:

LOC	SWAP
A38	A24

The program has reached a parameter stop. If using a preinitialized tape and no parameter changes are to be made, omit steps 7 and 8.

7. Set GR0 and GR1 to establish the appropriate equipment configuration to the program (see following Table).

EQUIPMENT CONFIGURATION PARAMETERS

GENERAL REGISTER CP/MEMORY PARAMETERS		CONFIGURATION
GR0	BIT 0	MATH PAC INSTALLED
	BIT 1	MICRO GROWTH INSTALLED
	BIT 2	GENERAL REGISTER SET 2 INSTALLED
	BIT 3	DMA INSTALLED
	BIT 4-15	NOT USED
GR1	BIT 0-7	MEMORY STACKS INSTALLED

8. Set GR3 and GR4 to select Options tests to be run and memory stack tests on which memory tests are to be run (see Table below).

OPTIONS TEST SELECTION

GENERAL REGISTER OPTIONS PARAMETERS		TEST SELECTED
GR3	BIT 0	MATH PAC TEST
	BIT 1	MEMORY WORST CASE TEST
	BIT 2	MEMORY SHIFTING BIT TEST
	BIT 3	GENERAL REGISTER GALPAT TEST
	BIT 4	PAGE REGISTER GALPAT TEST
	BIT 5	I/O CONTROL MEMORY GALPAT TEST
	BIT 6	NOT USED
	BIT 7	MAX BUFFER TEST
	BIT 8	I/O CONCURRENT TEST
GR4	BIT 0-7	OPTIONS MEMORY STACKS TO TEST

9. Press GENL DSPL indicator-switch.
10. Press DISPLAY SELECT CLR pushbutton.
11. Press AUTO START/START switch to START.
12. Observe PROG RUN indicator extinguished.
13. Observe REGISTER/DATA indicator switches (P register) = 000520.

The program has reached another parameter stop. If using a preinitialized tape and no parameter changes are to be made, omit step 14.

14. Set GR0 through GR17 corresponding to the I/O CHANNEL SELECTION TABLE. (See page 61).
15. Press GENL DSPL indicator-switch.
16. Press DISPLAY SELECT CLR pushbutton.
17. Press AUTO START/START switch to START position.
18. Observe PROG RUN indicator extinguished.
19. Observe REGISTER/DATA indicator switches (P register) = 000652.
20. If Max Buffer Test was selected press AUTO START/START switch to START position.Observe PROG RUN indicator is extinguished and REGISTER/DATA indicator switches (P Register)=000724.
21. If I/O Concurrent Test was selected, press AUTO START/START switch to START position. Observe PROG RUN indicator is extinguished and REGISTER/DATA indicator switches (P Register)=000737 with FAULT PROG indicator lit.
22. Press AUTO START/START switch to START position.
23. Observe REGISTER/DATA indicator switches (P Register)=001007.
24. Set the TEST/NORMAL switch on I/O MODE SELECT CARD in DPS location 23C to NORMAL (Right Position).

MICRO DIAGNOSTIC WITH END-AROUND JUMPERS OPERATING PROCEDURE

This procedure isolates and corrects malfunctions detected while attempting to bootstrap load diagnostic programs using micro diagnostic procedures.

NOTE

Test not applicable if load channel is MIL-STD-188C, RS232C, VACALES or NTDS serial type interface.

1. Set POWER LOGIC ON/OFF switch to OFF.
2. Set TEST/NORMAL switch (on card in DPS location 23C) to TEST (left).
3. Disconnect load device from DPS connect output of load channel connector to its own input connector (see Page 24) using test I/O jumper (P/N 90536-7150225-00, 90536-7150226-00, or 90536-7126394-00).

NOTE

If loading was attempted on a 32-bit parallel channel, connect channel n, and remove dual channel jumper plugs from channel n+4.

4. Set POWER LOGIC ON/OFF switch to ON.
5. Press DISPLAY SELECT CLEAR pushbutton.
6. Press MODE MICRO STEP indicator-switch.
7. Set DIAGNOSTIC DSPL switch to down position.
8. Set DIAGNOSTIC JUMP switch to up position.
9. Press MA CLR pushbutton.
10. Press MODE RUN indicator-switch.
11. Press GENL DSPL indicator-switch.
12. Set DISPLAY NUMBER to octal value of channel on which I/O jumper cable is installed.
13. Press PROG RUN indicator-switch.
14. Press AUTO START/START switch to START four times.
15. Press GENL REG indicator-switch.
16. Press DISPLAY SELECT CLEAR pushbutton.
17. PROG RUN indicator-switch extinguished. REGISTER/DATA = 070707.

I/O CHANNEL SELECTION TABLE FOR I/O DIAGNOSTIC PROGRAM EXECUTION

GENERAL REGISTER	I/O CONFIGURATION	CHANNEL NUMBER SET BITS TO SELECT CHANNELS USED IN EACH CONFIGURATION																													
		17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0				
		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0														
GR0	MIL-STD-1397 16-BIT PARALLEL CHANNELS (PIC, NTDS FAST, SLOW & ANEW)																														
GR1	MIL-STD-1397 32-BIT PARALLEL CHANNELS (DUAL AND DUAL PIC)																														
GR2	END-AROUND JUMPERED CHANNELS FOR ALL CONFIGURED CHANNELS																														
GR3	MIL-STD-188C SERIAL CHANNELS (SYNC & ASYNC)																														
GR4	RS-232C SERIAL CHANNELS (SYNC & ASYNC)																														
GR5	ASYNCHRONOUS CHANNELS (188C AND RS-232C)																														
GR6	MIL-STD-1397 NTDS SERIAL, LOW LEVEL SERIAL CHANNELS																														
GR7	MIL-STD-1397 ESA CHANNELS																														
GR10	MIL-STD-1397 NEW PIC CHANNELS (7132148, Type III)																														
GR11	VACALES CHANNELS																														
GR12*	INTERNAL 1 KHz -SET BIT 2 RTC RATE, 32 KHz -SET BIT 7	(SHADED BITS SHALL BE CLEARED)																													
GR13	MIL-STD-1397 OLD PIC CHANNELS (7131215, Type II)																														
GR16	EXTERNALLY CLOCKED SYNCHRONOUS CROSS-CHANNEL JUMPERED CHANNELS																														
GR17	CROSS-CHANNEL JUMPERED SERIAL I/O CHANNELS (1394 AND RS232)																														

* 1 KHZ CLOCK = 7132200 PCB IN LOCATION B23
32KHZ CLOCK = 7131130 PCB IN LOCATION B23

AN/UYK 20
I/O PINS:
5940-00-516-1702